

**COUNTY OF PLACER**  
**Community Development/Resource Agency**

Michael J. Johnson, AICP  
Agency Director

**PLANNING**  
**SERVICES DIVISION**

Paul Thompson, Deputy Director

**MEMORANDUM**

**TO:** Honorable Board of Supervisors

**FROM:** Michael J. Johnson, AICP  
Agency Director

By Brett Storey, Senior Management Analyst

**DATE:** January 7, 2014

**SUBJECT: UPDATED STRATEGIC PLAN FOR THE WILDFIRE PROTECTION AND BIOMASS UTILIZATION PROGRAM**

**ACTION REQUESTED**

Provide direction and/or approve the Strategic Plan for the Wildfire Protection and Biomass Utilization (Strategic Plan) program subject to annual funds availability.

There is no net County cost associated with this action.

**BACKGROUND**

In October 2007, the Board approved an initial Strategic Plan that outlined the County's vision to enable programs and research that would enhance the ability to prevent catastrophic fire and to utilize the vast renewable biomass loading within the County's forests and near its communities. County staff, working with multiple local, state, and federal agencies, private business and community groups, was able to develop a set of programs that have been both valuable and potentially sustainable for the future. Staff and the region were fortunate to be able to attract funding that has benefited not only the County but also many other agencies in California by the research and business practices developed. In the area of Wildfire Protection, \$1,409,440 has been awarded through grants, with \$232,295 used as matching amounts. The Biomass Utilization program was able to attract \$4,955,716 of grant funding with another \$3,985,007 in matching amounts. A variety of on-the-ground projects, as well as analyses leading to a potential model for small distributed biomass to energy facilities, has been developed. To continue implementing the Board's direction, the following are summaries of the updated Strategic Plan and what can be expected for the next five years of these program elements.

*Wildfire Protection Program:*

Placer County staff, fire mitigation, and prevention organizations have developed strategies, goals and objectives to take action to reduce catastrophic wildfires in the County. The County's development and support of the Placer County Fire Safe Alliance and five Fire Safe Councils provides the resources to work toward achieving these fire prevention goals.

This Plan defines the individual short- and long-term strategies needed to achieve the individual organizations fire prevention objectives. Placer County staff and the Placer County Fire Safe Alliance will facilitate the use of this document, and encourage collaboration of the many agencies involved to ensure the direction and results are consistent with this Plan.

The County will continue to build upon the program with the following:

- Strengthen the Fire Safe Alliance and Fire Safe Councils through the inclusion of local fire agencies and public and private business stakeholders that can contribute to fuels management and fire prevention efforts.
- Continue to seek funding to support fuels management and fire prevention effort defined in this Plan and the 2013 Community Wildfire Protection Plan.
- Increase public education and outreach programs into the communities to ensure the public has the information needed to understand its role in preventing catastrophic wildfires.
- Work with the State and Federal partners to ensure fire prevention projects and programs are consistently implemented across the County.

*Biomass Utilization Program:*

The basic focus of this program is reducing excess biomass in the County by developing ways to increase the utilization of the biomass for products that provide economic, environmental and societal value. The County has been able to work with many partners—individuals, companies, and all levels of government—to pursue this focus. There has been success in exploring ways to make biomass utilization more economically feasible. This has included use of test projects to find improved biomass handling methods, and undertaking a stewardship contract with the Lake Tahoe Basin Management Unit.

To increase biomass utilization in a sustainable way, the biomass must have economic value; i.e., there must be a market for biomass products. One potential market is biomass energy such as is envisioned for the Cabin Creek biomass energy facility. Planning and preparation for this facility has been very successful.

*Continuing and building on success, the County will:*

- Work with existing partners and seek new partners who share an interest in reducing excess biomass through programs that provide societal benefits.
- Continue to seek funding for projects and programs to increase biomass utilization.
- Continue to develop biomass sources and facilities, including Cabin Creek.
- Continue to pursue options for improving economic feasibility of biomass utilization.

*Continuing Improvement of Air Quality Support:*

Placer County has worked closely with the Placer County Air Pollution Control District (PCAPCD) on many aspects of biomass removal and utilization. A particular focus of this cooperation has been increasing utilization of biomass from forest management and hazard reduction projects in lieu of open burning—and thus providing significant benefits to improving air quality. This cooperation resulted in a national award from the Environmental Protection Agency in 2011. Other cooperation included assisting development of protocol to guide carbon credits associated with using biomass in energy facilities.

Future work with the PCAPCD will include many ways to help improve air quality in the County:

- Helping find biomass projects that take advantage of the benefits of the biomass to energy carbon protocol.
- Assisting development of a carbon protocol for bio-char that is a byproduct of gasification energy facilities.
- Working with PCAPCD on research that will help define the carbon-related benefits associated with forest management and hazard reduction work that reduces the negative effects of wildfire.

**FISCAL IMPACT**

There is no net County cost associated with approving the Strategic Plan for the Wildfire Protection and Biomass Utilization program. Many of the activities contained in the updated Strategic Plan will be funded by grants and other contractual activities. Several on-going grants are currently funding activities and

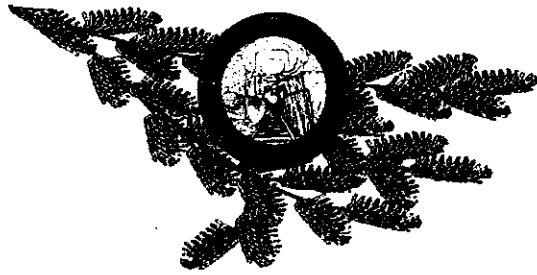
have been approved. When necessary, individual projects or grants will be brought back to the Board during future meetings to request authorization. Those will provide all fiscal aspects prior to implementing the activities outlined in this Strategic Plan.

Attached to this report for the Board's information/consideration are:

**ATTACHMENTS**

Attachment A: Strategic Plan for the Wildfire Protection and Biomass Utilization Program

cc: Holly Heinzen, Chief Assistant County Executive Officer  
Gerald Carden, County Counsel



2014

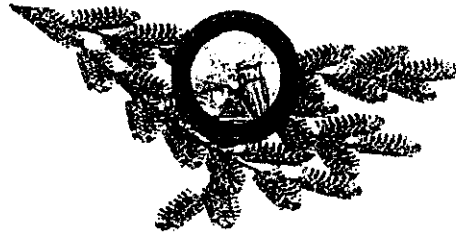
# Strategic Plan for the Placer County Wildfire Protection and Biomass Utilization Program



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**ATTACHMENT A**

**Placer County  
Wildfire Protection & Biomass Policy Team**



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## WILDFIRE PROTECTION AND BIOMASS UTILIZATION VISION

The County's wildfire protection and biomass utilization vision, created in 2007, has served Placer County well and will continue to guide this program into the future:

*In order to improve the County and its lands; by protecting residents, their property, and our environment; and to assure the future ability to maintain an enjoyable quality of life; we will continue to seek ways to reduce the effects of catastrophic wildfires, and convert unwanted woody biomass into a beneficial commodity. The Wildfire Protection and Biomass Utilization Program was developed in Placer County to help achieve this vision. The goal of the Program is to promote projects that will diminish the threat of catastrophic wildfires, improve public health and safety, reduce pollution, and enhance our environment. In addition, Placer County will advance environmentally sound economic approaches for the utilization of the County's renewable biomass resources to produce heat and/or electrical power, alternative transportation fuels, or beneficial bio-based chemicals and products.*

*It is the intent of Placer County to advance this vision in ways that are clear to all citizens so they understand that the County intends to protect its communities and the natural environment in conjunction with promoting forest health in practical ways. It is our hope that this mission will gain acceptance and support from all groups and individuals living and working in Placer County and from those outside who care about the county and the natural resources it contains.*

### **Lake Tahoe and Surrounding Forested Lands**



## EXECUTIVE SUMMARY

This Strategic Plan Update continues to provide the path for Placer County to help protect residents, communities, forests and important forest resources from the threat of wildfire and to efficiently manage and use biomass that is a large component of that threat. Implementing the elements of this Plan will make Placer County a safer, healthier and more enjoyable place for all.

In 2007 the County identified and implemented several key actions to help meet Program objectives. These include educating public citizens; developing strategic alliances with public and private partners; conducting coordinated and transparent planning; and obtaining grant funding. All these actions have helped so far and will continue to be part of future strategy. To accomplish wildfire safety objectives, the County will continue to implement established programs and engage agencies and citizen groups while implementing several new programs. To accomplish biomass utilization objectives, the County will continue to pursue the construction and operation of a biomass energy facility at Cabin Creek in eastern Placer County, and will coordinate or conduct technical studies designed to determine if it is feasible to establish other biomass facilities in the County. Placer County undertook a stewardship contract<sup>1</sup> with the Lake Tahoe Basin Management Unit (LTBMU) of the U.S. Forest Service (USFS) and desires to create another contract with the Tahoe National Forest (TNF) to ensure a long-term, economically feasible, supply of biomass removed from the forest throughout the County. In conjunction with these actions, the County will solicit interest and assistance from public and private stakeholders.

The update of this Strategic Plan focuses on the elements that were successful and attempts to fulfill those sustainable programs and add more coverage and diversity in the County. Staff has determined that adding a few complementary goals and revisions of the objectives to the program will help focus the next stage of the County's work. The next five years are designed to sustain the operations that have been built and then expand the influence of these ideas into long-term working groups, advocacy to improve legislation, and bring an increased renewable energy surge to Placer County and the rural California watershed. These steps will not only allow Placer County to become more fire safe, have less toxic emissions in the County's air, enhance the experience of the forested region, but also bring about economic development that focuses on renewable energy, other biomass products, and overall cost savings to the surrounding community. Cost savings will include the potential savings from lowered firefighting costs, fewer respiratory health-related issues, and less expensive property insurance. Further, the goals set forth in local, state and federal guidelines regarding energy, land use and air quality will continue to be met as the quality of life grows within the region.

Implementation of this updated strategic plan will likely see less grant funding than was previously acquired. It is expected that as private business enters the biomass utilization marketplace some of the projects will be funded partially or solely by private investments. However, staff will continue to work with all partners, agencies and citizen groups to pursue funding in focused areas.

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<sup>1</sup> See page 29 for discussion of stewardship contract

Working with all related agencies and groups to reduce fire hazard and improve fire safety measures is a major goal of the County. The number of focused groups and plans has been increasing and the County's efforts in implementing the first Strategic Plan have set the stage for a more maintenance-related approach in the future. But there are still many opportunities for expansion of key programs and continuing to develop new programs that provide significant benefits to the County. The Community Wildfire Protection Plan (CWPP), having recently been updated (located on website at <http://www.placerfirealliance.org>), now provides the direction for implementation of several critical projects throughout the County. All related government agencies are striving to combine funding and project boundaries to be able to stretch resources and increase the overall ability to reduce fire hazard in communities and recreation areas.

Biomass activities and projects have become important steppingstones to increased wildfire hazard reduction and long-term sustainability of the County's forested areas. By focusing on working with all agencies and private investors Placer County has become a leader in the potential for biomass utilization. A proposal for a small biomass to energy facility located at Cabin Creek, near Lake Tahoe at the Cabin Creek solid waste management site, promises to help manage biomass waste by converting it to energy rather than open burning that is the current common practice. In addition, the potential for more forest biomass to energy projects and/or facilities seems likely. This can provide renewable energy and fire safe areas while helping protect communities and important forest resources.

Implementation of this overall vision can be seen in phases. The first phase largely consisted of creating the original Strategic Plan, understanding our potential, setting up programs, securing funding, building stakeholder relationships, performing analyses, permitting a facility and other critical factors to implement the direction of the Board.

The next phase of implementation as described in this Strategic Plan update will continue the progress made by the County in its attempts to bring in other private funding to examine other energy creation options, establish additional fire safe areas and seek more improvements in biomass handling and economics.

Working with the Placer County Air Pollution Control District (PCAPCD) and other agencies to improve air quality will continue to be a focused effort of the County. The future will see an increased emphasis on conducting programs and attracting projects that take advantage of air quality benefits derived from utilizing biomass waste in all forms of energy production. The reduction of atmospheric carbon in Placer County associated with such utilization can provide marketplace credits that should improve the economics of projects that produce the biomass and thereby help expand the program in Placer County and other areas.

## 1. INTRODUCTION

Nearly half of all land in Placer County is forested. Much of the forestland has an abnormally heavy accumulation of woody biomass due to decades of fire suppression and forest management activities—including lack of management in many areas. In addition to contributing to poor forest health, excess biomass can fuel unnaturally large and intense wildfires that affect many valuable natural resources. The current level of sustainable forest management on public and private forestlands includes a focus on environmental, economic, and social values. This balance between environmental, economic and social values is particularly true on the public forestlands. The resulting land management practices do not remove a volume of biomass equal to current annual growth and do not reduce the overall amount of biomass at risk to disease, insects, and wildfire to an acceptable level. To address this issue, Placer County established the Wildfire Protection and Biomass Utilization Program in 2007 (hereafter referred to as “Program”) to address problems associated with biomass accumulation. As one element of the Program, the 2007 Strategic Plan was prepared to provide effective implementation of program actions.

### *Typical Forested Land within Placer County*



This 2013 Strategic Plan updates the 2007 Strategic Plan in a way that is intended to provide continuing, consistent guidance to the Program that recognizes changes and progress since 2007. This Strategic Plan will: 1) provide a measure of success of the goals and objectives reached during the term of the original document, 2) identify new opportunities and possibilities that exist for Placer County and its many partners to improve on the wildfire protection and biomass utilization activities for the foreseeable future, and 3) recommend actions to continue or transition beyond 2007 Strategic Plan actions that have been successful or completed.

This document will provide an outline of the program and practices that have been sustainable to date. Next, evidence of success will be outlined specific to original goals and objectives. Third, specific updates to approved program attributes will be detailed by showing original and enhanced future guidelines for the County. Finally, details regarding new program opportunities and schedules will be provided to guide future program implementation and monitoring.

## 1.1 Program History

The Placer County Board of Supervisors (BOS) recognized a significant issue with the threat of catastrophic wildfire in the County and desired to protect its citizens from the devastating effects of such a wildfire. In May 2005, the BOS formally allocated an increase in funds for wildfire hazard mitigation and other fire safety activities. In April 2006, the BOS authorized the County Executive Officer (CEO) to hire a Biomass Manager to examine options for reducing the abundance of flammable woody biomass in the County and putting it to use. At that same time the Board created a Wildfire Protection & Biomass Policy Advisory group in support of its stated direction. Both of these actions greatly increased the focus by the County and set a coordinated effort in motion that has been able to develop lasting partnerships, secure significant funding and formalize public policy to accomplish many projects and programs that have been able to reduce the risk of catastrophic fire. During 2007 a Strategic Plan was developed and adopted by the BOS to set a five-year strategy to create a sustainable program for Placer County. The Placer County Fire Safe Alliance was reinvigorated and added partners to achieve the goals set forth in the Strategic Plan.

With the personnel in place, during the following few years, a series of actions were implemented after grant funds were secured including the following: 1) in 2008, 2009 and 2010 several grants were secured to focus on developing a biomass to energy facility, 2) implementation of fuel load reduction projects, 3) and providing Clean Air funds to reduce air emissions from the region by diverting excess biomass to energy facilities in lieu of open burning. During 2011, additional grants were awarded including those for a specific biomass facility design and a community collaborative health review of the proposed biomass to energy facility. In 2012 the County's biomass to energy facility at Cabin Creek was given a permit to build and now in 2013 investment partners are close to a decision to construct and operate the first 100% forest waste-operated facility in the country. Over that timeframe Placer County assisted over fifteen other California counties in their desire to have a similar program. In addition, the County participated in several legislative actions to support the common efforts in both Sacramento and Washington D.C. to promote biomass utilization and reduce the risk of catastrophic fire by recognizing the economic and environmental value of these actions.

Placer County's proactive approach in addressing biomass management and fire risk has provided the unique opportunity to lead the state in implementing elements of California's 2012 Bioenergy Action Plan<sup>2</sup>. The County's approach also provides the opportunity to develop lasting partnerships and capitalize on state and federal funding for biomass programs. This

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<sup>2</sup> The 2012 Bioenergy Action Plan was prepared by an Interagency Working Group. It "outlines strategies, goals, objectives and actions that California's state agencies will take to increase bioenergy in California"

Updated Strategic Plan will provide direction for Placer County and its partners to address the issues related to catastrophic wildfire and biomass removal and utilization.

## 1.2 Program Area

Placer County, California is located east of Sacramento between Nevada and Yuba Counties (to the north), Sutter County to the west and El Dorado County (to the south). The County stretches from the edge of the Central Valley, east through the foothills and Sierra Nevada to Lake Tahoe and the Nevada border (Figure 1). Approximately half of the County's 969,600 acres are forested. This includes considerable portions of the Tahoe National Forest and Lake Tahoe Basin Management Unit.

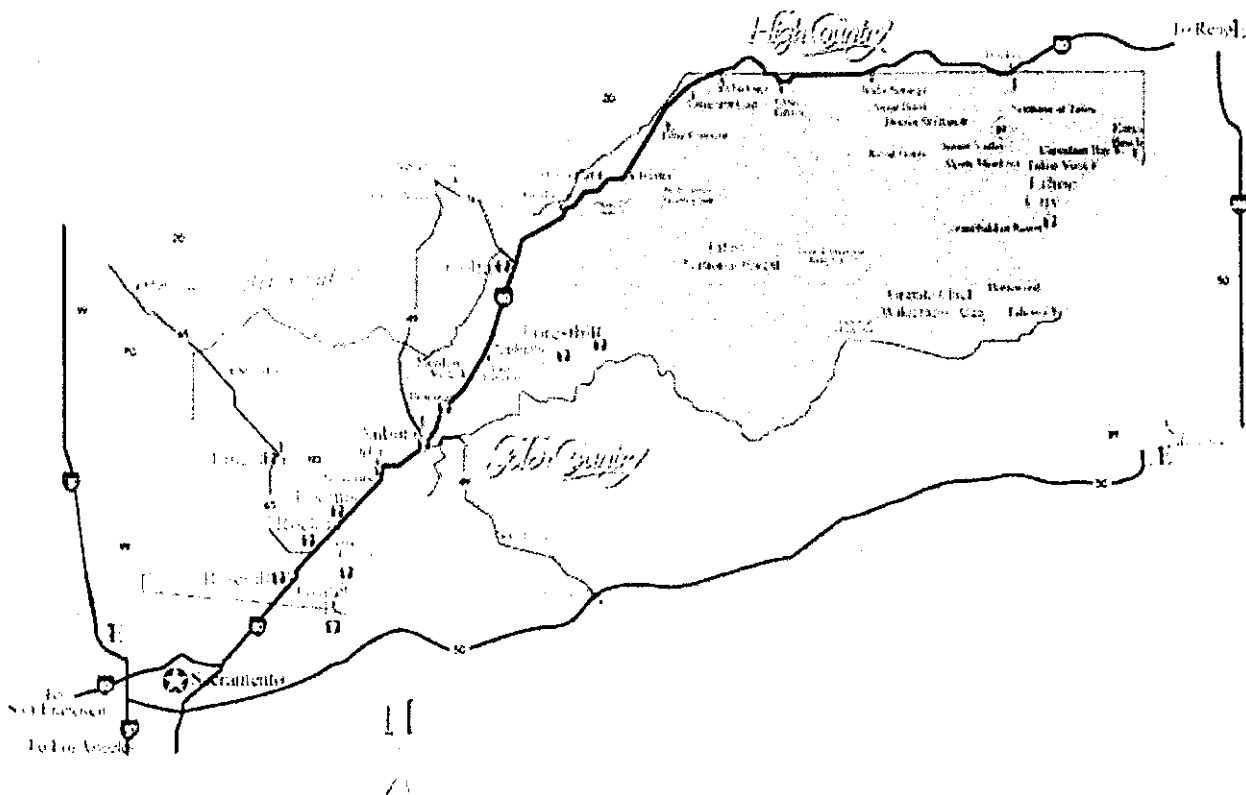


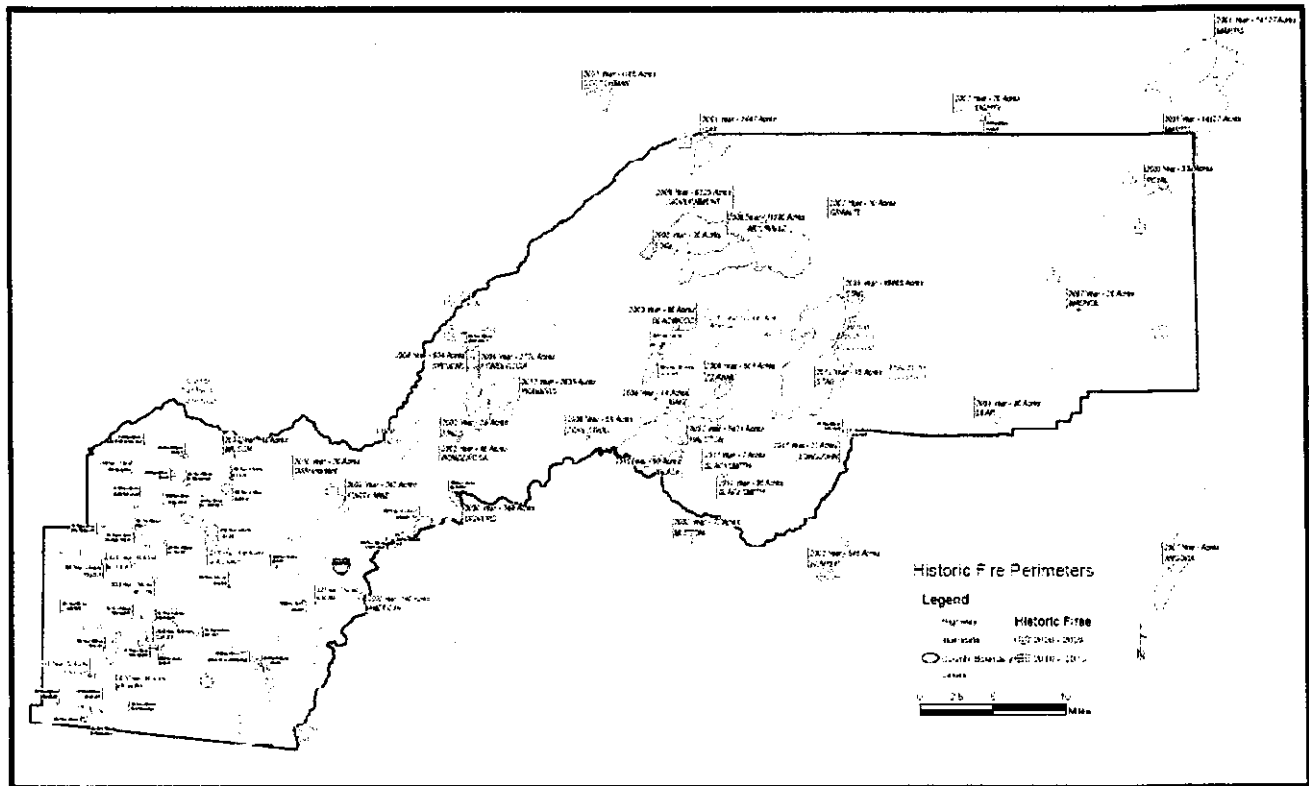
Figure 1. Placer County

Overall, Placer County has experienced modest population growth during the last decade. The majority of the growth has occurred in western Placer County where forested land cover is limited. According to U.S. Census Bureau data, the County's population grew from 248,399 people in 2000 to 348,432 in 2010. This represents a 28.71% increase. While the forested areas of the County saw little growth between 2000 - 2010 the area is populated with over 70,000 permanent residents and approved general plans for the area have a significant holding capacity for growth. In addition to permanent residency, the area also has a significant amount of temporary residents and tourism activity. Much of the County's existing and projected growth will be in communities along the Wildland-Urban Interface (WUI) in both forested and oak woodland environments.

To help protect people and their property from potentially catastrophic wildfires, the National Fire Plan (as drafted by federal agencies in 2000) directs funding to be provided for projects designed to reduce the fire risks to communities. A fundamental step in achieving this goal was the identification of communities that are at high risk of damage from wildfire. Thirty-eight<sup>3</sup> of the 1,289 communities currently categorized as at-risk are located in Placer County. Some of these communities have already been affected by wildfire.

Since 2001<sup>4</sup>, nine major fires have occurred in Placer County (i.e., the Gap, Ponderosa, Star, Ralston, Government, Westville, the American Complex, Robbers and American fires) (Figure 2). These fires negatively affected over 77,000 acres of forest and important forest resources, cost millions of dollars to fight, and resulted in injuries to dozens of firefighters. In addition over 70 smaller fires were fought within the county.

**Figure 2. Historic Fire Perimeters Since 2000**



Sixty percent of Lake Tahoe's western shore is located within the County. The population growth of permanent residency in the Lake Tahoe Basin (Basin) has actually decreased over the past ten years and the overall population of the Basin at any given time is highly linked to the number of visitors. Lake Tahoe is a national and international tourist destination, and the Basin's economy is significantly dependent on the resort, recreational, and gaming industries. In addition to its economic importance, the Basin provides numerous other benefits including

<sup>3</sup> Calif Fire Alliance web site

<sup>4</sup> CAL FIRE incident history web site

water supply, terrestrial and aquatic habitat, and aesthetic enjoyment. In 2007 the devastating Angora fire in El Dorado County burned approximately 3,100 acres and consumed 254 homes bringing significant focus on improving wildfire hazard reduction and community safety conditions surrounding this world treasure. In 2013, the American fire, in the watershed of the North Fork of the American River burned approximately 27,500 acres. While no communities were immediately threatened, many valuable resources were heavily impacted.

### **1.3 Accomplishments/Actions that supported the 2007 Strategic Plan**

Placer County set out with an ambitious but reachable set of goals, objectives and program strategies to be achieved during the first five years (2008 – 2012) of this Strategic Plan. Many departments within the County, agency partners, business entities and citizens assisted the County in the success of program. The following information will outline a brief description of how each Goal & Objective was addressed and provides a matrix with an abbreviated description of the more relevant activities will follow. Each of the activities has a more detailed report outlined on the County's website.

#### *Original 2007 Goals:*

1. Reduce the risk of catastrophic wildfires in Placer County. Progress in meeting this objective has been realized through the efforts of each of the Fire Safe Councils (FSC's) and fire agencies in developing strategic fuel breaks and in increasing public education. The County has put in place sustainable programs for removing significant amounts of excess biomass from the WUI and wild land forests. In addition a new Hazardous Vegetation Abatement (HVA) on Unincorporated Parcels pilot ordinance was adopted and has been showing promising results at getting more parcels fire safe.
2. Protect Placer County citizens and visitors from the consequences of catastrophic wildfires. Evacuation route planning and the California Department of Transportation (Cal Trans) I-80 corridor project are two key projects to protect Placer County citizens and visitors to this area. The Interstate 80 project has significantly reduced fuel loads along 37.6 miles of highway to prevent roadside fire starts and evacuation planning can help expedite traffic movement if a fire does start. With a reduction in open-pile burning the smoke and toxic air emissions have been lessened throughout the county.
3. Continue to explore beneficial uses for excess biomass in Placer County. Several projects have led to the possibility of multiple uses for biomass now and in the future. Specifically the County has developed a series of on-the-ground projects to analyze the benefits of removing and utilizing biomass for energy instead of open burning. The County has been successful in studying and entitling a biomass to energy facility with a private partner in the Tahoe area. Lastly, the County has partnered with a private firm to study and implement tests in the western county area of a technology that creates transportation fuels for vehicles from biomass.
4. Continue to improve air quality in Placer County. Positive impacts have been accomplished via several biomass removal projects in both the Foresthill area and north and west Tahoe areas and our program to remove biomass piles for energy instead of open burning has

been implemented. The County has engaged several federal, state and local partners in these projects. Several reports have been posted on our website that reflects the magnitude of the emission reductions and the collaboration between agencies. The County, with its partners (PCAPCD, USFS and Sierra Pacific Industries), was awarded a 2010 Clean Air Award from the U.S. Environmental Protection Agency (EPA) for actions related to the program implementation.

*Original 2007 Objectives:*

1. Determine the feasibility and options for removing excess woody biomass from lands within the County. Through programs created by the direction of the Strategic Plan, the County has been able to develop economical options for removing biomass with a number of local, state and federal partners while working with private companies to look at the sustainable future of this process. This included several projects in cooperation with the LTBMU that involved extensive study of the logistics and economics of processing and transporting biomass. Reports documenting these efforts can be located on the biomass webpage.
2. Determine the feasibility and options for transporting excess biomass from the source to a biomass processing and/or utilization facility. As part of the biomass utilization facility at Cabin Creek project, existing research on logistics requirements/options to move material throughout the area was reviewed and documented in a report. The most feasible routes and transportation methods were evaluated and options to reduce travel miles and emissions were defined.
3. Determine the feasibility and options for converting excess biomass into electrical power, alternative transportation fuels, or another commodity beneficial to the citizens of Placer County. Staff has been able to develop two projects that utilize forest biomass for conversion to energy. Specifically a biomass to electricity project and biomass to transportation fuel project have been in progress and potentially can use forest-sourced biomass within Placer County. Several reports have been documented as a part of our Department of Energy grant programs and are located on our webpage.
4. Identify and secure funding for Program activities. As defined in the grant success section, the County was able to acquire over \$10,000,000 in grant funding to examine feasibility of potential projects, provide for fire safe programs, lower air pollution from open burning by removing waste biomass, and to evaluate the health impacts of biomass to energy projects.
5. Continue to promote the Program and strategies. Staff was able to work with many agencies, community groups and the general public to increase education, collaboration and development of strategies and projects that allowed the County to lower the fire risk in key areas and utilize biomass for a variety of products. Section 4.4 of this strategy provides specific information on this objective. The level of safety and conservation within the forested area has increased over the past five years. Staff has been involved with multiple other counties and agencies to assist in the promotion of ideas and programs that were a part of the direction of the strategic plan and are continually asked to come and provide assistance.

6. Continue and expand management practices that protect Placer County from the adverse effects of wildfire. Through the increased collaboration and sharing of best practices between all agencies in Placer County, programs have been expanded to work towards the reduction of the effects of wildfire throughout the county. Outreach from the County Fire Safe Councils to improve the public's knowledge and the expansions of the Hazardous Vegetation Abatement ordinance are key factors in this reduction.
7. Continue to seek and evaluate information on new strategies that will protect the County from the adverse effects of wildfire. Working with various agencies and implementing new programs to assist each other with complementary projects allows more areas to be protected. A large amount of thinning and defensible space clearing near homes and business has helped reduce the potential effects of wildfires on the treated areas.
8. Examine the feasibility of the various alternatives for removing excess biomass from wild-lands in Placer County. Through projects related to study of the feasibility of a biomass utilization facility at Cabin Creek, homeowner-related hazardous biomass removal programs and various biomass removal field projects, staff was able to look at several options for removing biomass near infrastructure. Economics played a large role in the determination of best practices.
9. Coordinate with resource agencies, other counties, fire protection organizations (e.g., Fire Safe Councils), utilities, consultants, and the public to improve the level of fire protection in the County. The Placer County Fire Safe Alliance continues to expand. Additional fire agencies and local organizations have joined the Alliance efforts to share best practices and co-develop fire prevention strategies. Options have been developed for organizations to share more of the cost of treating and removing hazardous biomass materials.
10. Identify the various beneficial uses and markets for excess biomass in Placer County. To date staff efforts within the energy market have focused only on removing waste biomass material throughout the county. Periodically staff has been asked by the California Energy Commission and other agencies to reflect on the experiences that have occurred within our county with regard to the best options going forward with biomass to energy. Staff will continue to review other options.
11. Determine the most beneficial use(s) for excess biomass in Placer County. Staff has evaluated various potential uses of excess biomass material. To date, only the energy market has shown significant potential for any kind of economic return that could lead to sustainable operations. At this point short hauling distance—generally 30 miles or less—coupled with cost sharing with other agencies are generally necessary to make economics of biomass utilization favorable. There is potential to increase economic feasibility with funding related to reduction of carbon, criteria air pollutants, avoided wildfire, and damage to watersheds and wildlife habitat. With the exception of carbon, there is currently no program available to generate such funding. And even funding for carbon reduction-related utilization of biomass is still a program in its infancy.
12. Market biomass utilization opportunities to private biomass business enterprises. Staff has been successful with one private business partner to potentially build a small biomass to

energy facility at Cabin Creek. A second project with a private business to build a biomass to transportation fuel facility will yield a demonstration program during 2014 and 2015 that could eventually lead to a commercial scale facility being built in the western part of the county. There is definite potential for other bioenergy projects in the County.

The Placer County Team has been able to document and share many of the studies and field operations through published papers, publically available reports and responses to outreach requests from various agencies. Placer County has presented extensive information about various successful processes and findings to assist others in developing biomass-related functions.

In addition to the accomplishments referenced in the above Goals and Objectives section and discussed further in this document, the Placer County Team has been able to document and share results of many of the studies and field operations through published papers, through publically-available reports and through a variety of invited presentations around the state and country all of which are located on our websites.

#### **1.4 Websites**

Two separate websites were made operational to allow the public to understand what Placer County was accomplishing in the areas of Biomass Utilization and Wildfire related activities.

The Placer County Biomass website is structured to provide information regarding the grants that are being accomplished, a sample of the presentations and press coverage of the program, and a summary of all programs and projects activities. The biomass website is at <http://www.placer.ca.gov/Departments/CommunityDevelopment/Planning/Biomass.aspx>.

The Placer County Fire Safe Alliance (PCFSA) website is structured to provide information regarding the PCFSA and each of the FSC's. Information on the site includes public information, schedule of events and meeting agenda and minutes. The PCFSA website is at <http://www.placerfirealliance.org>.

#### **1.5 Unmet obligations of the 2007 Strategic Plan**








There was only partial achievement of some proposed actions in the 2007 Strategic Plan. Below is an accounting of those items. Included is a discussion of whether those items should continue to be on the list of recommended actions or dropped off at this juncture.













1. Along with the update of the 2007 Community Wildfire Protection Plan (CWPP) and the addition of the Greater Lincoln FSC, the Granite Bay and Loomis plans were not included in the updated plan. These two areas will be added to the next CWPP update or a separate CWPP document if needed prior to the next scheduled CWPP update.
2. The continued decline in grant funding has prevented the completion of many of the planned projects defined in the current 2007 Placer County CWPP. While there have been positive results in each FSC area, less than half of the projects were funded. These projects are still important, and will continue to be the focus of the new 2013 CWPP.











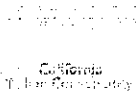
3. The agriculture waste removal/mulch program was not implemented due to other higher priorities. This program will be reviewed to determine feasibility for future implementation.






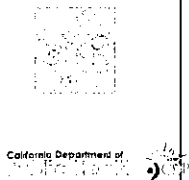


### 1.6 Grant success in support of the 2007 Strategic Plan





Placer County has been able to compete and win over \$6,365,000 in grant funding to support the BOS directives. Further, another \$4,217,000 of funding and in-kind matching dollars was also put into these projects. Below is a matrix of the grants that have been completed and/or are in current operational mode.

YEAR	FUNDING AGENCY	GRANT	TITLE	GRANT FUNDING MATCHING FUNDS	PARTNERS
2007		Clean Air	Biomass Box Program	\$70,000	
				\$10,000	
2007		Fuel Break	Grand Oaks Open Space	\$29,000	Grand Oaks Homeowners Association
				\$12,000	
2008		Clean Air	Fire Prevention Assistance Program	\$60,000	
				\$15,000	
2008		Clean Air	National Forest Biomass Removal Program	\$60,000	
				\$15,000	

YEAR	FUNDING AGENCY	GRANT	TITLE	GRANT FUNDING MATCHING FUNDS	PARTNERS
2008		Grant	Assessment of Small Scale Biomass Facility	\$25,000	
				\$27,000	
2008		Strategic Opportunity	Biomass Removal on National Forest Lands	\$49,500	 
				\$250,000	
2008		Congressional Directed	Biomass Utilization Pilot Project Phase I	\$492,000	
				\$123,000	
2009		Clean Air	USFS American River Biomass Removal Program	\$40,000	
				\$25,000	
2009		Clean Air	Regional Biomass Removal Program	\$45,000	
				\$25,000	
2009		Congressional Directed	Biomass Utilization Pilot Project Phase II	\$1,427,250	

YEAR	FUNDING AGENCY	GRANT	TITLE	GRANT FUNDING MATCHING FUNDS	PARTNERS
2009		Fuel Reduction	Alpine Meadows WUI Fuel Reduction and Forest Health	\$175,000	
				\$932,250	
2009		Alternative & Renewable Fuel and Vehicle Transportation Program	Forest Waste Biomass to Methane Fuel Conversion Process	\$1,229,966* (Technology partners received funding)	
				\$1,232,257	
2010		Clean Air	Tahoe Region Community Biomass Removal Program	\$22,000	
				\$10,000	
2010		Clean Air	USFS LTBMU Biomass Removal Program	\$40,000	
				\$35,000	
2010		Clean Air	State Agency Biomass Removal Program	\$35,000	 
				\$15,000	

YEAR	FUNDING AGENCY	GRANT	TITLE	GRANT FUNDING MATCHING FUNDS	PARTNERS
2011		Woody Biomass Utilization	Engineering Design of a Biomass Power Generation Facility	\$150,000	
				\$37,500	
2011		Resource Advisory Committee	Last Chance Integrated Vegetation Management Biomass Removal Project	\$50,000	
				\$144,000	
2011	 Red and Wood Johnson Foundation	Health Impact Assessment	Placer County Cabin Creek Biomass Energy Facility	\$125,000*	
				(PC portion \$25,000)	
				\$35,000	
2012		Planning	Gillis Hill	\$17,500	
				\$0.00	
2012		Community Assistance	Chipper Grant	\$400,000	
				\$0.00	

YEAR	FUNDING AGENCY	GRANT	TITLE	GRANT FUNDING MATCHING FUNDS	PARTNERS
2012		Public Assistance	Chipper Grant	\$750.00 \$0.00	
2012		Strategic Opportunity	American River Canyon Shaded Fuel Break	\$146,690 \$121,920 \$0.00	
2012		Prop 84	American River Canyon Shaded Fuel Break – Maidu North	\$100,000	
2012		Prop 84	American River Canyon Shaded Fuel Break – Maidu South	\$100,000 \$0.00	
			TOTAL for Placer County (including matching funds)	\$9,252,492	
			Total with Partners (including matching funds)	\$10,582,458	

## *Short Summary Descriptions*

The following are brief descriptions of each of the grant projects and their status:

### 2007

*Biomass Box Program* – The County received a Clean Air Grant award from the PCAPCD for \$70,000 to implement a “Biomass Box” program. The program objective was twofold. First, it encourages County residents to clear defensible space around their homes to improve fire safety and survivability. Secondly, it provides a means for collection and utilization of the resultant brush, tree limbs, natural debris, etc. for use as fuel for producing energy.

Through the implementation of this grant, 3,361 green tons of waste biomass material was collected and converted to 2052.6 megawatts (MW) of electrical energy (enough to power 228 homes for one year). Because this material was burned in a controlled facility instead of open burning the net air pollution reduction was 88.6 % or over 300 tons of pollutants. All funds were expended on projects and documented in a report located on our Biomass Web page.

*Grand Oaks Open Space* – A USFS Grant through the California Fire Safe Council Grant Clearinghouse for \$29,000 to clear eight acres and apply the Shaded Fuel Break Prescription. An additional matching amount was provided by the Grand Oaks Homeowners Association and a funding mechanism for long-term sustainability for the project was developed. The fuel break was completed and all funds were expended.

### 2008

*Fire Prevention Assistance Program* – A Clean Air Grant award from the PCAPCD for \$60,000 to implement a program to provide fire prevention assistance. This complemented other annual County fire prevention programs such as defensible space inspections, shaded fuel break maintenance and others. Biomass boxes were placed into communities that require/desire defensible space treatments. Utilization of the program accelerated after the Angora Fire in Lake Tahoe. All funds were expended on projects and documented in a report located at the County’s Biomass Web page.

*National Forest Biomass Removal Program* – A Clean Air Grant award from the PCAPCD for \$60,000 to Placer County has implemented programs to provide fire prevention assistance and reduce air pollution. While working with the USFS in Placer County it was determined that a large amount of accessible woody biomass materials is piled and burned at the end of any forest thinning operation due to the high cost of alternative options. The USFS and Placer County pooled resources to process, remove, chip and haul the accessible materials to nearby biomass energy facilities. All funds were expended on projects and documented in several reports located on our Biomass Web page.

*Assessment of Small Scale Biomass Facility* – A grant from the USFS and High Sierra Resource Conservation and Development Council funded a study to evaluate existing technologies that produce electrical energy and heat from biomass materials with air pollutant emissions low enough to be able to be permitted and other attributes that will allow the

technology to be utilized in eastern Placer County. The study assessed the possibility of combined heat and electrical power (CHP) generating technology, utilizing locally available fuels (i.e. woody biomass fuels easily accessible and obtainable with no new access road construction in the forest) that would otherwise be wasted resources. Biomass technologies, both direct combustion and gasification systems were evaluated, with the goal of being environmentally compatible and allowable in eastern Placer County. Results were very positive and further analysis is continuing. All funds were expended on projects and documented in a report located on the County's Biomass Web page.

*Biomass Removal on National Forest Lands* – A \$49,500 strategic opportunity grant was received from the Sierra Nevada Conservancy for the primary objective of the removal of multiple tons of woody biomass material from National Forests within the Sierra Nevada Conservancy's (SNC) service area.

This project was proposed and sponsored by Placer County in a partnership, with the following organizations; USFS, PCAPCD, and Sierra Pacific Industries (SPI). Placer County served as the lead partner in the implementation of this project. Placer County proposed that woody biomass material that is a byproduct of fuels treatment activities be removed and utilized as fuel for clean, renewable energy rather than the normal practice of on-site piling and burning or scattering. The project facilitated the removal of the woody biomass from the TNF and the LTBMU. All funds were expended on two projects and documented in a separate reports located on our Biomass Web page.

*Biomass Utilization Pilot Project (Phase I)* - \$492,000 Congressionally Directed Grant – (Congressman John Doolittle); via the U.S. Department of Energy (DOE) award No. DE-FG36-08G088026 "to facilitate a comprehensive project that integrates all facets of feasibility for the successful deployment of a woody biomass to energy project located in eastern Placer County." Such a facility is critical to serving the hazardous forest fuels reduction programs in this region in future years. In order to accomplish this, a series of analytical and investigatory studies were undertaken to provide a private partner with due diligence grade information that can be used to assess the feasibility of planning, constructing and operating a small (1 to 3 megawatts) biomass energy facility. All funds were expended on research and analyses and have been documented in a multiple reports located on our Biomass Web page.

## 2009

*American River Biomass Conversion Program* – A Clean Air Grant award from the PCAPCD for \$40,000 to implement programs to provide fire prevention assistance and reduce air pollution. While working with the USFS in our region Placer County has forged a partnership to process, remove, chip and haul the accessible biomass material to nearby biomass to energy facilities. The TNF developed a 5-year plan for forest management that includes many thinning projects within Placer County on the American River Ranger District. The TNF will be the leader in these activities. It is critical for the County to have this partnership to ensure that as much waste material as possible can be processed, transported, and utilized for energy production rather than open burned in the County. All funds were expended on projects and documented in a report located on our Biomass Web page.

*Regional Biomass Conversion Program* – A Clean Air Grant award from the PCAPCD for \$45,000 provided residents in all urban forested areas throughout the County with information, training and assistance of clearing away defensible space around their homes and businesses. This is critical for the protection of the County's citizens, improvements, wildlife habitat, watersheds and forest health. Placer County worked with Resource Conservation Districts, FSC's, local Fire Departments and Districts and businesses to develop these materials and messages. The intent was to work directly with the public and private business to allow materials to flow into regional facilities and operations rather than being burned in the open. To that end, Placer County used the funding to work with a regional biomass operation that took biomass material and ground it into chips then transported the chips to the nearest energy facility. Placer County developed several landings designated throughout the County where woody biomass was stored until a portable tub grinder could come to chip the material before it was hauled by truck to the biomass plants. This program is slated for completion by the end of 2013 and all funds would be expended.

*Biomass Utilization Pilot Project (Phase II)* - \$1,427,250 Congressionally Directed Grant – (Senator Diane Feinstein); via DOE award No. DE-FG36-08GO88026 to begin the environmental and land use feasibility studies associated with a biomass to energy facility in eastern Placer County. Under this grant Placer County was to complete a number of actions: 1) prepare environmental studies pursuant to the California Environmental Quality Act, the National Environmental Protection Act, 2) obtain New Source Review Permitting from the PCAPCD and the Tahoe Regional Planning Agency (TRPA), 3) prepare the necessary land use studies to support the receipt of entitlements from the TRPA and Placer County. These agencies, collectively, govern the proposed site, facility, emissions, and eventual operations. This grant has produced some substantial results which can be viewed in multiple reports on the County's Biomass Web page. Progress will continue with these funds through 2015 and the completion of the Cabin Creek biomass to energy facility.

*Alpine Meadows Fuel Break* - \$175,000. A project to hand thin fuels and improve stand conditions on 20 acres of national forest. The project was for fuel reduction work adjacent to 5 acres of previously-treated National Forest land. The project is located in the Tahoe National Forest between Snow Crest Road and Mineral Springs on both sides of Alpine Meadows Road. The main component of the grant is fuels reduction within the Bear Creek owned by the Alpine Springs County Water District and held in common by residents of Alpine Meadows Estates and Juniper Mountain. Fuels include the removal of small diameter fir and pine as well as shrubs. An addition the fuels reduction portion of the project included the aspen (*Populus tremuloides*), vegetation. The fuel break was completed and all funds were expended.

*Forest Waste Biomass to Methane Fuel Conversion Program Demonstration Project.* The California Energy Commission's Alternative and Renewable Fuel and Vehicle Technology Program has funded a technology development company (G4 Insights, Vancouver B.C.) to conduct a demonstration project in Placer using forest-sourced biomass. This biomass will be converted by the demonstration unit into bio-methane (nearly identical to fossil-based natural gas) which will then be compressed for use in a Placer County-owned Compressed Natural Gas (CNG)-fueled vehicle in a feasibility test. Placer County is providing in-kind services for the demonstration project. The use of forest-sourced biomass for transportation fuel will open up another potential product stream that could increase the feasibility of future Placer County

hazardous fuels reduction projects. G4 Insights, through its subcontractor, TSS Consultants, is also preparing a feasibility study for the siting of a facility in Placer County that would use the biomass to bio-methane technology. This grant has produced a prototype system that will convert biomass to fuel and be tested during 2014 in a county vehicle. G4 Insights has been expending funds according to their plan.

## 2010

*Lake Tahoe Basin Management Unit Biomass Removal Program*– A Clean Air Grant award from the PCAPCD for \$40,000 to expand the program to projects that are removing existing biomass piles as well as excess biomass from forest thinning projects and to utilize the biomass for energy in lieu of burning or scattering on site. This new project should assist in lowering the overall costs of biomass removal and reduce many days of future burning within this region. The LTBMU has realized the value of increased safety and the value of reduced health risk from lowered air pollution levels due to the material not being burned while continuing to reduce risk of a catastrophic fire. The work under this program has shown strong support from Placer County residents and participating partners. The project was completed in 2013 and was part of an integrated operation for both tree thinning and biomass removal in the Lake Tahoe area. This funding has been expended and a report is expected to be completed by early 2014 on will be on our biomass website.

*Tahoe Regional Community Biomass Conversion Program*– A Clean Air Grant award from the PCAPCD for \$22,000 to continue funding of a valuable program for citizens in eastern Placer County. Placer County works with many Fire Agencies, Fire Safe Councils and homeowner associations to organize and promote the collection of all woody materials cleared from the urban forest by providing drop areas in various locations within all communities that have a need. The intent of this continued program (besides reducing emissions) is twofold; 1) assist the community with the clean disposal of woody biomass using one joint process, and 2) set in place a reliable source of woody biomass for the proposed Cabin Creek biomass facility which could be operational by 2014/2015. This grant project is on-going and all funds should be expended by the end of 2014.

*State Agency Tahoe Basin Biomass Removal Program*– A Clean Air Grant award from the PCAPCD for \$35,000 was awarded to the County/State agency team to remove biomass from lands that are owned by both the California State Tahoe Conservancy and the State Parks. Multiple projects within the Lake Tahoe Basin were conducted and several tons of material and potential emissions were removed and processed into energy. These projects were accomplished in the wildland-urban interface (WUI) and have helped provide further safe zones for the area residents. This project has been completed and all funds expended during 2013 and a report is expected by the end of 2013 and will be located on our biomass web page.

*Placer County Chipper Program* – A CAL FIRE WUI grant for \$313,500 providing a low-cost curbside chipping service to help landowners in their efforts to reduce fire hazards by creating defensible space and converting large brush piles for burning into small biodegradable chips useful for mulching or landscaping. The Chipper Program is supported in part through federal and state grants secured by Placer County RCD in partnership with Placer County, Placer

County Sheriff's Dept., CAL FIRE, PCAPCD, California Fire Safe Council, and Tahoe National Forest. The projects were completed and all funds were expended.

*Biomass Utilization Pilot Project (Phase III)* - \$1,000,000 Congressionally Directed Grant – (Senator Diane Feinstein); via DOE award No. DE-FG36-08GO88026 to continue work on the Cabin Creek biomass to energy facility (considered to be Phase II of the work program). The grant funds were used to develop extensive environmental analysis and related studies for the proposed Biomass Energy Facility at Cabin Creek. The studies were approved by the Placer County BOS and the project was approved for implementation. These funds will be used to assist in the development of the facility and are projected to be utilized during 2014 and 2015 to complete the project.

*South Ridge Open Space Grant* – A \$25,000 USFS grant through the California Fire Safe Council, Grant Clearinghouse for application of the Shaded Fuel Break to 10 acres. The South Ridge Homeowners Association contributed approximately \$15,000 and developed a mechanism to fund future sustainability of the project. The fuel break was completed and all funds were expended.

*American River Canyon Shaded Fuel Break, Aeolia* – A Proposition 84 grant through the California Conservation Corps (CCC) for \$100,000 to treat Aeolia Drive and the Olive Orchard area of U.S. BOR Lands adjacent to the City of Auburn. The Aeolia Heights Homeowners continue maintenance by implementing an herbicide treatment funded with homeowner funds. The fuel break was completed and all funds were expended.

## 2011

*North Tahoe Fire Protection District Biomass Conversion Program*– A Clean Air Grant award from the PCAPCD for \$35,000 was provided to the County/North Tahoe team for use in bringing back a program to remove biomass from their jurisdiction that often is chipped back onto properties or burned in the open. A variety of projects are planned that will reduce the need for open burning and provide relief for many residents in disposing of the annual materials. This program is on-going with a variety of community events and funds are expected to be completed by the end of 2014.

*Engineering Design of a Biomass Power Generation Facility* - The USFS awarded a \$150,000 Woody Biomass Utilization grant to support the Lake Tahoe Regional Biomass to Energy Facility Technology Integration (i.e., the Cabin Creek facility) and Facility Design. This work allowed the proposed Cabin Creek biomass utilization facility to be designed to meet Placer County standards. The results allowed for this proposed facility to be moved to the project-permitting stage. Since this grant completion the County has obtained a conditional use permit and is now seeking an authority to construct permit and final design approvals for the project.

*Last Chance Integrated Vegetation Management Biomass Removal Project* – A USFS Resource Advisory Committee (RAC) Grant for \$50,000 to assist in processing, transporting, and utilizing for energy, the excess biomass generated on the Last Chance forest management project located in the upper Middle Fork American River watershed in the Tahoe National Forest. The contractor for this project has kept detailed records for equipment time

and fuel use to allow analysis of the benefits of renewable energy produced compared to energy from fossil fuels used and offset. In addition the piles of material were located on a University of California based research project that greatly benefited from the material removal and avoided burning. This project has been completed during 2013 and all funds expended. A full report is expected to be on the biomass web page during the first part of 2014.

*Placer County Cabin Creek Biomass Energy Facility* – A Health Impact Assessment Grant from the PEW Charitable Trust and the Robert Woods Foundation for \$125,000 to perform a Health Impact Assessment (HIA). The HIA was performed by the Sequoia Foundation in collaboration with the Placer County Departments of Planning and Health and Human Services with technical support from the California Department of Public Health, was a year-- - long process to assess the potential health effects related to the proposed biomass energy facility (BEF). Health impacts related to air quality, wildfires, greenhouse gas emissions, traffic and transportation, water quality, noise, and economic and energy security were considered. Both Positive and negative health effects were considered in the assessment, and recommendations were made to protect and improve community health. Community Input was solicited and incorporated in many phases of the assessment. The project is complete, all funds were expended and a report is available on the biomass web page.

*Scotch Broom Challenge* – A USFS Title II Resource Advisory Committee (RAC) Grant for \$2,000. A combined Nevada and Placer Country grant to support community Scotch Broom eradication events. Placer Sierra Fire Safe Council received \$2,000 of the total \$6,000 grant. The project was completed and all funds were expended.

## 2012

*Placer County Chipper Program* – A CAL FIRE Prop 40 Community Assistance Grant (CAG) for \$400,000 to provide a “curb-side” chipping service supported in part by federal/state grants secured through a partnership of Placer Country RCD, Placer County, Placer County Sheriff’s department, PCAPCD, and CAL FIRE. The program is on-going and all funds are anticipated to be expended by 2014.

*Placer County Chipper Program* – A PG&E Community Assistance Grant for \$750 to support the ongoing efforts of the “curb-side” chipping service in Placer County. The project was completed and all funds were expended.

*Gillis Hill Fuel Break* – A Sierra Nevada Conservancy grant for \$17,000 for environmental compliance work for this CWPP program in the Placer Sierra Fire Safe Council area. This project also aims to tie in a network of shaded fuel breaks from Colfax to Foresthill. The Foresthill Fire Safe Council has been working over the past years to complete many projects that will increase fire safety for the communities and allow adequate ingress and egress into the canyon. The Gillis Hill Ridge fuel break will increase the effectiveness of the network by allowing emergency personnel to gain the access needed to protect both the communities of Colfax, Iowa Hill, Foresthill, and many others. This project will also aim to increase forest health, watershed health and quality of the American River. The fuel break project is on-going and all funds are anticipated to be expended by 2014.

*American River Canyon Shaded Fuel Break Robie Point to Portland.* A Proposition 84 grant was received for \$146,690 from the Sierra Nevada Conservancy (SNC) to apply a Shaded Fuel Break to approximately 60 acres in the American River Canyon near the City of Auburn. A collaborative project with the City of Auburn, State Parks, U.S. BOR, and CAL FIRE. Matching and "in kind" funding of approximately \$122,000 was obtained from the collaborative agencies. The fuel break was completed and all funds were expended.

*American River Canyon Shaded Fuel Break for fuels treatment of the Maidu North area (Gate 143) through Proposition 84 funding by the CA Conservation Corp. (CCC).* Applied approximately \$100,000 to the Shaded Fuel Break to treat approximately 10 acres on U.S. BOR lands in the Auburn area. The fuel break was completed and all funds were expended.

## **2. PLAN GOALS**

The original goals of Placer County's Wildfire Protection and Biomass Utilization Program have proven to be valuable and will continue with minor updates:

1. Reduce the risk of catastrophic wildfires in Placer County.
2. Protect Placer County citizens and visitors from the consequences of catastrophic wildfires.
3. Continue to explore beneficial uses for excess biomass in Placer County.
4. Assist efforts to improve air quality in Placer County.

Additional goals for the Program in 2013 will be:

1. Continue to seek and explore options for increasing economic viability/efficiency of sustainable forest management that helps to reduce wildfire effects and maintains or improves forest health.
2. Continue to promote biomass energy and help others working to develop biomass utilization strategies in their communities.
3. Continue to provide information about Placer County Programs to a wide spectrum of public and private interests.

## **3. PLAN OBJECTIVES**

The original primary objectives of Placer County's Wildfire Protection and Biomass Utilization Program were admirable and many of them were achieved. During the next five years the following objectives will guide activity prioritization:

1. Continue to explore and expand management practices and strategies that help protect Placer County and its residents from the adverse effects of wildfire.

2. Continue exploring and developing the most effective and efficient opportunities for sustainable removal of excess woody biomass from both private and public lands within the County and for using the biomass to produce electrical power, transportation fuel or other commodities beneficial to the citizens of Placer County and beyond.
3. Identify and pursue public and private funding for Program activities.
4. Continue to promote the Program and strategies.
5. Continue existing partnerships and seek additional partnerships with resource agencies, other counties, fire protection organizations (e.g., Fire Safe Councils and Fire Safe Alliance), utilities, consultants, and the public to improve the level of fire protection in the County.
6. Market biomass utilization opportunities to private biomass business enterprises.
7. Coordinate and communicate with federal and state agencies to ensure that woody biomass energy production can be used as a form of Renewable Energy Credits (REC's), that woody biomass can be utilized from public land, that investment and production tax credits continue to exist for biomass to energy projects and that all potential ways of valuing atmospheric carbon reduction related to forest management and biomass utilization be pursued.
8. Continue to coordinate with programs and studies that monetize the societal benefits of resources such as watershed health, wildlife habitat, carbon sequestration and outdoor recreation, all of which accrue from wise, sustainable forest management.
9. Continue to promote community awareness and wildfire prevention education.
10. Continue to help prioritize and implement hazardous fuel reduction projects in accordance with existing agreements and partnerships.
11. Continue to cooperate with the PCAPCD, USFS and others on studies that help meet the goals and objectives in this Strategic Plan document.

#### **4. UPDATED PROGRAM STRATEGIES**

With the adoption of this Updated Strategic Plan in 2013, Placer County will continue to embark on a series of actions that will promote pertinent research; provide collaborative solutions; outline necessary annual programs; build lasting partnerships; plan focused technology demonstrations; develop infrastructure for appropriate facility development; and determine appropriate funding solutions to allow for advancements in wildfire safety and the establishment of programs to assist and facilitate ecologically and economically sustainable forest resource management that helps reduce wildfire hazard and increase utilization of woody biomass. Specific strategies described below are designed to meet Plan objectives and are a combination of appropriate strategies from the original Plan and new strategies that reflect updated information and opportunities.

The 2013 Plan, like its original predecessor, focuses on two main themes: wildfire protection and biomass utilization. The following sections are divided thus and discuss strategies tied to 2013 Plan objectives that address each and the common factors among them. Each of the areas of emphasis will show potential program and projects that can be implemented or continued to address concerns. Possible strategies for short-term and sustainable solutions and future study areas will be addressed in each.

#### **4.1 Wildfire Protection**

Wildfire protection is a key focus of the 2013 Strategic Plan and is illustrated by the emphasis of Plan objectives.

- Enhance life safety for residents and responders
- Mitigate undesirable fire outcomes for property and infrastructure
- Identify communities and values at risk
- Promote community awareness
- Improve wildfire prevention through education and public outreach
- Facilitate and prioritize appropriate hazardous fuels reduction projects

During the 5-year term of the 2007 Strategic Plan, Placer County received \$695,190 for direct project funding and \$714,250 for the Placer County Chipper program. Combined these grants amounts to over \$1.4M in outside funding. The Fire Safe Council's top priority is to establish consistent financial resources that can be applied to the County's fire mitigation goals.

#### ***Burned Home as a Result of the Angora Fire in the Lake Tahoe Area***



Chronicle / Lance Iversen

The following strategies are in direct response to 2013 Plan objectives.

#### **4.1.1 Fire Safe Organization Development/Coordination**

The County supports a stronger alliance between the County and other public/private parties involved in catastrophic wildfire prevention and fuel reduction efforts. Alliances enable sharing of knowledge, coordination of activities, and provide additional credibility to program activities. Placer County representatives currently attend neighboring county fire safe council meetings as well as the Society of American Foresters, Northern California Prescribed Fire Council, and insurance industry forums to understand their respective goals and objectives.

##### *Placer County Fire Safe Alliance*

Placer County has established strong partnerships through the development of the Placer County Fire Safe Alliance (PCFSA). The PCFSA has a core team consisting of representatives from the USFS, Bureau of Land Management (BLM), CAL FIRE, U.S. BOR, and Placer County Office of Emergency Services (OES). PCFSA members include fire professionals, FSC's, PCRCD, PCAPCD, private and public entities and individuals that support fire safe and Firewise programs. The Firewise program encourages local solutions for safety by involving homeowners in taking individual responsibility for preparing their homes from the risk of wildfire. Firewise is a key component of Fire Adapted Communities – a collaborative approach that connects all those who play a role in wildfire education, planning and action with comprehensive resources to help reduce risk.

- To inform and educate the public on fire safe communities, fire risk and fire hazard mitigation.
- To aid, assist, and participate in fire mitigation planning efforts.
- To prioritize and seek funding for coordinated fire safe projects and activities.
- To monitor and review fire safe activities to ensure alliance goals are met.

Strategy: Expand the Placer County Fire Safe Alliance membership to include agencies and companies that have a stake in the effects of catastrophic wildfire. Encourage companies such as PG&E, Union Pacific Railroad, Placer County Association of Realtors, water agencies and home insurance providers to participate. Encourage these agencies and companies to fund projects that prevent fires within their own infrastructure as well as provide grants to others that are in proximity to these properties and facilities.

##### Short-term strategies:

- Increase current member participation through increase communications and advanced meeting planning
- Update the current MOU between all Alliance agencies

- Initiate outreach to agencies and organization that can have an impact on fire prevention processes and programs. These may include local realtor and home insurance agencies

Long-term strategies:

- Update and maintain Goals and Objectives that reflect current strategies and Alliance membership direction
- Manage the yearly update to the CWPP project list to reflect the latest strategies and funding availability
- Understand and develop relationships with State and Federal agencies with Goals, Objectives and a mission similar to the Placer County Fire Safe Alliance. These would include the California Fire Safe Council, California Fire Alliance, and the National Fire Protection Association's (NFPA) Firewise Communities Program.
- Ask all agencies and organizations working on County conservation planning processes to plan for, and assign funding for, long term fire mitigation support of reserve land management including controlling invasive species and fuels management activities. Alliance partners including local Fire Safe Councils, local, and State fire agencies can provide guidance on recommended fuels management and fire prevention processes and techniques.

*Fire Safe Council Support and Growth*

Placer County recognizes and works with four FSC's in the western slope and two in the Tahoe area.

- Foresthill/Iowa Hill FSC encompasses the area within the Foresthill Fire Protection District area.
- Placer Sierra FSC planning area including the City of Colfax, the areas covered by Weimar, Applegate, Colfax Area Municipal Advisory Council and Meadow Vista Municipal Advisory Council.
- Greater Auburn Area FSC planning area includes the City of Auburn, and the areas comprised of North Auburn/Ophir Fire, Bowman, Christian Valley, and the communities of Newcastle and Penryn.
- Greater Lincoln FSC planning area consistent with the existing Placer County Conservation Plan, excluding the City of Lincoln.
- Alpine Meadows, with focus in the area of five neighborhoods. These include Alpine Center, Alpine Meadows Estates, Bear Creek, Juniper Mountain and Chalet.

- Tahoe Area FSC includes four fire districts on the California side of Lake Tahoe. These include Fallen Leaf Fire Department, Lake Valley Fire Protection District, Meeks Bay Fire Protection District, and North Tahoe Fire Protection District.

#### Short-term strategies:

- Promote, implement, coordinate, and facilitate individual landowner fuel reduction and defensible space efforts
- Capture and utilize biomass material generated through the Defensible Space Program projects
- Continue to assist community fire safety efforts by advocating, implementing, coordinating, and facilitating establishment of fuel breaks at strategic sites along access routes, on ridges, or in areas highly susceptible to fire (e.g., along railways and major highways).
- Encourage the insurance industry and other relevant parties to develop incentives (e.g., credits or discounts) for their customers to make dwellings, communities, and landscapes safe from fire. Incentives would be similar to those homeowners currently receive for having smoke alarms, security systems, and other safety equipment.

#### Long-term strategies:

- Continue to establish arrangements for sustainable fuel reduction efforts around new development in and adjacent to the WUI.
- Continue to adopt ordinances dealing with defensible space.
- Develop new funding strategies to support the requirements within the CWPP. With the shift to include more community-based projects more local based, smaller dollar grants may be available from local businesses or organizations to support their local community objectives.

Funding/Budget Strategy: Funding through public and private grants is essential to the success of fire mitigation efforts in Placer County. While small projects on private land may be funded by the individual land owner, large projects outlined in County plans require significant grant funding to support the project planning process and the actual “on the ground” mitigation work. Individual grant type and dollar levels to fund grants continue to fluctuate. While the County must leverage those available, it must also develop long term, sustainable financial resources to be able to achieve our future fire mitigation requirements.

### **4.1.2 Coordinated Planning**

#### *Community Wildfire Protection Planning*

Placer County supports community wildfire prevention through the Community Wildfire Protection Plan (CWPP) process. Placer County’s support for the CWPP process includes funding, assistance with projects, and assistance with grant preparation. A CWPP enables a community to plan how it will reduce the risk of wildfire. The plan identifies strategic sites and

methods for fuel reduction projects across the landscape and jurisdictional boundaries. Benefits of having a CWPP include National Fire Plan funding priority for projects identified in a CWPP. In addition, the USFS and BLM can expedite the implementation of fuel treatments identified in a CWPP through alternative environmental compliance options offered under the Healthy Forests Restoration Act. Placer County supports these efforts and has provided funding to complete the five year update of the 2007 CWPP document.

Three CWPP's have been adopted in Placer County since 2004. The (2004) CWPP's for the California Portion of the Lake Tahoe Basin, the (2005) Alpine Meadows CWPP, and the (2008) CWPP for the West Slope of the Sierra Nevada in Placer County, continue to provide prevention guidance to County FSC's for catastrophic wildfires.

#### *Placer County Community Wildfire Protection Plan (CWPP)*

In April 2013 the Placer County BOS adopted the update of the 2008 document. The adoption of the new 2013 Placer County CWPP defines a new set of deliverables and opportunities to reduce the risk of catastrophic wildfire in our local communities. The new plan takes the old plan to a new level. Instead of a regional perspective, the new CWPP moves the focus into the community. The project list is no longer focused on strategic fuel breaks, but now includes community-focused programs, public education, areas of special interest (i.e. parks and lakes), and critical infrastructure (i.e. railroads and communications towers) protection projects.

#### Short-term strategies:

- Monitor the progress of each FSC strategy outlined in the updated 2013 CWPP.
- Use the Alliance resources available to provide direction to achieve their goals and objectives.
- Review the CWPP project list annually and make adjustments to ensure the list is still applicable to current fire prevention strategies and available grant funding.

#### Long-term strategies:

- Develop long term sustainable financial resources to accomplish the CWPP goals, objectives and project lists.

Funding/Budget Strategy: While the 2013 CWPP is funded through the federal Secure Rural Schools Title III program, most projects are funded through state and federal grant processes. Certain projects may be eligible to receive matching funds from the agreement between the County and PCWA that have a direct nexus to the Middle Fork of the American River. Public education material is also funded through Title III dollars but all defensible space and fuel break projects are funded through grants. To achieve the goals of the CWPP, we will need to research and define future funding opportunities at the County, State and Federal levels and present fire mitigation projects and funding needed to complete CWPP projects to each of these agencies and work with them to define possible long term, sustainable funding commitments. Additional actions will be to:

- Define future funding from resources with a direct nexus to projects within the individual Fire Safe Council areas that support fire mitigation through fuels management and fire prevention efforts.
- Define opportunities to fund fire prevention and fuels management projects in specific areas or future development through the County Service Area Zone of Benefit (ZOB) process (i.e. Monte Verde Estates Fuel Break, ZOB No. 178).

Define funding opportunities related to the value of biomass produced during CWPP or defensible space projects to help offset the cost of the projects.

#### **4.1.3 Defensible Space**

Increasing numbers of homes in Placer County are present along the WUI (i.e., homes and structures bordering wildlands). Without proper mitigation, most of these homes and structures are at great risk of being damaged or destroyed by wildfire. In addition, homes and structures adjacent to wildlands, especially ones without defensible space and proper wildfire mitigation efforts, stretch firefighting resources and raise fire suppression costs. Placer County currently has several programs designed to support individual homeowners and businesses in reducing fuels and establishing defensible space around their properties. These programs include public education programs, the "Chipper" Program and the PRC §4291 Defensible Space Inspection Program.

For the most part, Placer County has relied on voluntary cooperation of private landowners to implement local hazardous fuel reduction measures. In all likelihood there will always be a certain amount of non-compliance. However, experience has shown that there are residents that would like to comply, but simply are unable to.

#### ***Completed Defensible Space Project at a Typical Home in Placer County***



Placer County currently works with the Placer County Fire Safe Alliance (PCFSA), community-based FSC's and local fire professionals to establish long-term fuel reduction and maintenance arrangements. Given the desire to promote fire prevention activities, Placer County will develop methods to recognize communities and individuals that demonstrate a superior commitment to fire prevention and fire safe activities.

Strategy: Placer County has committed resources and funding to support the National Fire Prevention Association's Firewise Communities Program. A combined Grant Writer and Firewise Coordinator position has been developed to support the FSC's' and PCFSA's need for funding and community fire prevention activities.

Short-term strategies:

- Inform the public of County programs that define fire mitigation requirements.
- Provide information on the California Fire Code and the adopted requirements in County Fire Code section 15.04.700 <http://qcode.us/codes/placercounty/>.
- The grant writer will work with each of the FSC's and PCFSA to align available grants with the CWPP projects specific to identified defensible space requirements in the plan.
- The Firewise coordinator will identify communities within the county interested in becoming a nationally recognized Firewise community.

Long-term strategies:

- Working to educate those within each FSC area, communities and individual homeowner, is the primary approach to achieve defensible space.
- Supporting processes like the Chipper Program and Green Waste disposal solutions help support the defensible space efforts by providing residents with a process to dispose of excess material produced from defensible space projects.
- Developing a plan to provide a list of projects and strategies to support a cohesive county wide effort to link the Fire Safe Council and local agency projects together to ensure fire safe efforts are linked to achieve area to area coverage and consistency.
- Educate the public on the interpretation and use of;
  - Placer County Local Hazard Mitigation Plan (LHMP) <http://www.TBD.com>
  - 2013 Placer County Community Wildfire Protection Plan (CWPP) <http://placerfirealliance.org/> .
  - 2013 Hazardous Vegetation Abatement Ordinance (HVA) <http://www.placer.ca.gov/departments/fire/hvao> .

Funding/Budget Strategy: Today, most projects are funded through State and Federal grant processes. Grants large enough to support multiple jurisdictional projects are not available. With only small grants available, each project is a standalone project.

### *Placer County Fire Codes*

Placer County has adopted the Uniform Fire Code and has incorporated more rigid standards when deemed appropriate. The current fire code is contained in Chapter 15.04.700 of the Placer County Code. Placer County currently conducts assessments and makes recommendations for more stringent fire code standards in coordination with the various fire organizations in Placer County, the Placer County Fire Safe Alliance, and Placer County staff. Recommendations are presented to the BOS for consideration and approval.

California Fire Code, 2010 Edition Volumes 1 & 2, including, the administrative provisions in the California Building Code, Chapter 1, Division II based on the 2009 International Fire Code including the Appendices, as published by the International Code Council (ICC) as adopted and amended by the California Building Standards Commission in the California Building Standards Code, Title 24 of the California Code of Regulations, Part 9.

The California Fire Code adopted in Section 15.04.700 is modified, amended and/or supplemented as follows:

*A. 1. The California Fire Code (CFC) as adopted above with approved amendments and appendix chapters, and all State Fire Marshal codes delegated to local agencies, are to be enforced by the Chief of each Fire District, CSA, or as designated by contract. In the absence of the above, the Placer County Fire Warden shall act as the County Fire Marshal. Where provisions in the CFC conflict with other statutes/regulations or County ordinances, including but not limited to the Placer County Land Development Manual, the most restrictive shall govern.*

Strategy: Ensure each fire safe agency understands all aspects of the Placer County Fire Code section 15.04.700 and considers these requirements when developing strategies or solution for wildfire prevention activities.

### Short-term strategies:

- Develop a communications link with the Placer County Fire Protection Planning team to stay informed on all aspects of fire prevention activities, requirements, and codes in Placer County.

### Long-term strategies:

- Conduct an annual session at the Placer County Fire Safe Alliance meeting to review changes that may impact the Alliance and FSC projects or direction.

Funding/Budget Strategy: Placer County Fire Code management and implementation are coordinated through the Placer County Fire Protection Planning team. This team is funded through the Placer County Fire Department that contracts with CAL FIRE for fire protection services.

## *Defensible Space Code*

The requirement of a defensible space around a building or structure is mandated by California state law, Public Resources Code (PRC) 4291. Placer County and all fire safe agencies support this code and all processes and projects developed are generated with state regulations in mind. The foundation of PRC 4291 is the requirement to maintain a 100-foot defensible space buffer around each building or structure. Each of the fire safe and fire agencies encourage all homeowners to achieve and maintain an effective defensible space. Public education is a key part of helping homeowners understand this requirement and be aware of the resources available to assist if needed. The Placer County BOS has also taken added steps to help property owners achieve defensible space goals when living near an unimproved parcel.

Strategy: PRC 4291 is the State mandated defensible space code. Placer County along with all fire safe organizations and agencies has adopted and supports this requirement. All groups will continue to work with the public to educate the public on this requirement.

### Short-term strategies:

- Continue to support public education meetings and seminars to keep the public educated on the requirements and need for defensible space.
- The County will continue to review and implement projects that promote fire prevention, and will look to more directly encourage up-front activities such as the mandatory installation of fuel breaks whenever new homes and businesses are developed in the WUI.

### Long-term strategies:

- PRC 4291 currently only applies to improved parcels. Placer County has adopted an ordinance requiring the owner of an unimproved parcel to do vegetative clearing where it is necessary to provide 100 feet of clearing on an adjoining improved parcel. A review needs to be prepared to understand the cost and effects of this requirement.

Funding/Budget Strategy: Defensible space requirements are generally performed by property owners. In some cases, funding may be required to support those disabled or physically unable to perform the requirements. This funding has not been available, thus requiring volunteers to assist these residents in creating their defensible space.

## *Hazardous Vegetation Abatement Ordinance*

Following the destructive fires that occurred during the summer of 2007 and at the request of the Lake Tahoe community, the Hazardous Vegetation Abatement (HVA) on Unincorporated Parcels pilot ordinance was adopted. Where the owner/occupant of the improved parcel is unable to obtain the required defensible space clearances, as delineated in adopted County Codes and/or PRC 4291, and the current condition of fuels on the unimproved parcel is assessed by the fire warden (or designee) as an extra hazardous fire condition, the owner of the unimproved parcel shall provide the fuel modifications to meet the defensible space requirements of the improved parcel. If the property owner does not perform the work this ordinance allows the county to begin a process for performing the work and billing the owner.

The pilot ordinance covered the jurisdictions of North Tahoe Fire Protection District, Alpine Springs County Water District, Squaw Valley Public Service District, and the Northstar Community Services District.

The HVA ordinance has grown from a pilot program in the Tahoe basin to include the western slope of the county. In August 2010 the Foresthill Fire Protection District, Loomis Fire Protection District, the Penryn Fire Protection District, and the Placer County Fire Service Areas adopted the ordinance. On April 9, 2013 the Placer County BOS adopted the ordinance to include all unincorporated areas of the County.

Strategy: PRC 4291 mandates clearance of 100 feet around a structure or to the property line, whichever is greater. Many unimproved parcels are unmaintained and pose a threat to neighboring homes and structures. This ordinance is in place to support a property owner's need to achieve the 100 foot defensible space requirements.

Short-term strategies:

- Continue to inform the public of this requirement. Proactively reach out to property owners of unimproved parcels to introduce this ordinance.
- Work with neighboring cities and agencies to develop a process to address conflicting vegetation abatement processes.

Long-term strategies:

- Many cities in Placer County have established Weed Abatement Ordinances to address defensible space requirements on improved parcels. The County will review these ordinances to determine if an ordinance similar to the current HVA ordinance should be developed to cover the same standards on improved parcels adjacent to improved parcels.
- If an ordinance is adopted to include requirements for improved parcels, an analysis will need to be done to determine if additional funding is required.

Funding/Budget Strategy: The original funding put in place in 2007 has sufficiently funded the implementation of the current HVA Ordinance. No additional funds are needed to support this program at this time.

#### **4.1.3.1 Planning for Protection in WUI Development Areas**

Protecting homes in WUI areas from wildfire is a growing issue in Placer County as it is in much of California and other western states. These homes require a disproportionately high level of attention, resources and cost for protection. Some communities have added various fees to new development to help offset the added cost. Other communities have pursued voter approval for additional funding from WUI landowners to offset additional costs.

Strategy: County Staff will investigate options for offsetting the additional cost of protection of development in WUI areas.

## 4.2 BIOMASS UTILIZATION PROGRAM

Several of the objectives of the Biomass Program relate to removing excess materials and converting waste biomass into a valued commodity that provides economic and societal benefits. This section of the Plan provides discussion of the strategies the County will utilize to achieve this goal. Specifically discussed are the methods, activities and projected uses that will be investigated in support of the Program.

During the 5 year term of the 2007 Strategic Plan, Placer County received \$4,955,716 for direct project funding and another \$3,985,007 for partner organizations. Combined this amounts to total \$8,940,723.

### *Typical Pile of Biomass Left Behind to be Burned*



### 4.2.1 Biomass Partnerships

There are numerous organizations around the region, the country, and the world that have unique perspectives on the topics pertaining to the Program. There are also many other groups performing activities similar to and compatible with those proposed in this Strategic Plan. For this Strategic Plan to be successful, Placer County must engage the diverse expertise and knowledge of other organizations, agencies, and individuals.

#### **4.2.1.1 Government Agency Partnerships**

Placer County has been fortunate in having a long history of working with local, state and federal agencies related to forestry, air quality, conservation, WUI and stewardship interests. During the past several years a stronger relationship has been forged for the assessment, processing and removal of a forest biomass waste and utilization of the waste for energy production in the county. Specifically, working groups, cost sharing contracts, operational logistics information sharing, advocacy and grant funding have been developed.

Strategy: Placer County will build on the partnerships comprised of local, state and federal agencies. From these partnerships, the County will build a core group of managers, employees, and consultants to help derive strategies, plans, and demonstrations. The partners will review and comment on these strategies, plans, and demonstrations. The County anticipates this process will lead to a better program--one that is acceptable to all and implemented appropriately.

##### Short-term strategies:

- Continue to support each of the Placer County partnerships working to dispose of waste biomass in a way that is environmentally and economically acceptable.
- Create new partnerships to cost share effective uses for waste biomass.

##### Long-term strategies:

- Organize a standing working group that includes membership obligations.
- Continue working with partners to advocate for, and ensure continued availability of, waste biomass from public lands.

Funding/Budget Strategy: Generally staff time is the only obligation necessary to continue the development of these critical relationships. County staff will balance their time to ensure cost effectiveness.

#### **4.2.1.2 Technical and Business Partnerships**

For Placer County to be successful in the biomass utilization sector it will need to continue to attract and promote leading technical partners that can help determine the County's best opportunities for biomass utilization. In particular, it is absolutely critical that the County cultivates private interest in the biomass utilization component of the Program. The County was fortunate that a joint public-private venture requiring matching investments was created to leverage limited public funding and reduce risk exposure.

Strategy: Placer County will look for partners who are willing to invest time, money, and expertise in helping the County achieve its Strategic Plan goals. Incentives for partners to join the County include business opportunities that are likely to result if biomass utilization facilities are developed; opportunities for cooperative research related to forest management, carbon benefits and biomass utilization activities; and income related to carbon offsets or potential

other ecosystem services. Placer County has already been approached by several private firms and educational institutions hoping to be involved in biomass utilization plans.

Short-term strategies:

- Keep supporting all private venture partnerships that show a potential for use within the county.
- Continue to discuss biomass utilization projects with private firms interested and involved in the bioenergy industry—include all forms of bioenergy including biofuels and bio-products in addition to bio-power.

Long-term strategies:

- Organize a standing working group that includes obligations for active participation in seeking ways to increase biomass utilization opportunities.

Funding/Budget Strategy: Generally staff time is the only obligation necessary to continue the development of these critical relationships. County staff will balance their time to ensure cost effectiveness.

#### **4.2.1.3 Public Partnerships**

Placer County realizes that the work in the area of biomass utilization cannot be complete without the active participation of affected communities and stakeholders. Over the past few years lessons learned in the area of community outreach were incorporated into our projects. Placer County sought to reach out to a number of individuals, community leaders, groups and national environmental coalitions before proceeding with new ideas.

Strategy: Develop partnerships with individuals and organizations that share a common interest in meeting Placer County's goals and objectives as outlined in this strategy. Continue to reach out to both existing and potential new partners.

Short-term strategies:

- Continue to reach out with information and collaboration for all biomass related initiatives.

Long-term strategies:

- Organize a standing working group that includes membership obligations.

Funding/Budget Strategy: Generally staff time is the only obligation necessary to continue the development of these critical relationships. County staff will balance their time to ensure cost effectiveness.

#### **4.2.2 Economic Biomass Removal**

Placer County has multiple reasons for being interested in removing excess biomass from county forestlands. Two particularly significant reasons are: (1) Removing excess biomass reduces a fuel source that contributes to large wildfires, and thereby increases community safety, protects public and private property, increases firefighter safety and can substantially

reduce fire suppression costs. (2) Excess biomass can be utilized in an energy facility and thereby reduce dependence on fossil fuels for energy. The monetary value of these two benefits can be calculated and is significant. Perhaps even more significant, but more difficult to quantify, by reducing wildfire effects, removing excess biomass provides valuable societal benefits including protection of natural resources and improving air quality.

There are two general means of “removing” excess biomass and its fire hazard from a site. The first option is to treat biomass on-site—generally by piling and burning--so that the total amount of biomass is reduced. The second option is to transport biomass to an off-site location where it can be disposed of or processed and utilized.

Note that excess biomass can also be rearranged on-site by lopping and scattering or mastication. This helps reduce, but does not fully mitigate short-term wildfire hazard, since the total quantity of biomass remains until it decays over time. Since the cost of rearrangement is often as much as removal options, rearrangement of biomass is generally less desirable than removal.

Ultimately, both potential benefits and constraints determine whether biomass removal occurs and what methods are used. These include, but are not limited to:

- Societal benefits/constraints
- Predicted economic effects/outcomes
- Ecological benefits/constraints including predicted resource (e.g., biological, physical, cultural) effects
- Effect on tourism including visual impacts of the treatment method used
- Long-term sustainability a combination of social, economic and ecological benefits and/or constraints
- Biomass market value and stability

Placer County recognizes the advantages of coordinating with other groups (e.g., USFS, CAL FIRE, FSC's, public utility districts and local fire districts involved in biomass removal activities. The County will continue to encourage the coordination of forest treatments on private land with those on adjacent public land. This will facilitate the sharing of resources and assist in public outreach and education.

There are several components to biomass utilization. The subsequent section of this document includes a discussion of each component. Although discussed separately, the components are highly interrelated, and must be considered in an integrated manner for any project to be fully effective. For example, successful and increased utilization of biomass will be heavily influenced by whether or not additional biomass utilization businesses/facilities can be attracted to the area. Attracting biomass businesses to the area is highly dependent on whether a reliable and economical supply of biomass feedstock can be assured.

Utilization or offsite treatment of excess biomass has been effectively limited to two main options. The first is landfill disposal, not a desirable outcome given landfill constraints (particularly in forested areas of eastern Placer County) and the resource waste that disposal represents. The second is utilization of the biomass in an energy generation facility or as a commodity such as mulch. Placer County and its cities have for years been capturing some biomass waste, recycling it, and producing various commodities (e.g., mulch) at the landfill in Rocklin (Materials Recycling Facility MRF), which is jointly owned and governed by the County and the cities of Rocklin, Roseville, and Lincoln (Western Placer County Waste Management Authority). Future plans will actually increase the amount of this material being recycled throughout the County. There are also facilities in or near Placer County that have utilized excess biomass for generation of electricity. Unfortunately, due to the high cost of processing and transporting biomass, coupled with low power prices currently offered by utility companies, some of these facilities (Sierra Pine, Pacific MDF, Carson City and Loyalton) are no longer operating. It is not known if these facilities will reopen in the future. And even facilities that continue to operate, Rio Bravo and SPI's Lincoln facility, have difficulty in obtaining biomass at a competitive cost. This makes some forest management projects less viable and contributes to the continuing buildup of excessive levels of biomass in the forest that in turn create high fire hazard.

***Biomass Being Chipped and Blown into a Chip Truck***



Placer County has investigated and will continue to investigate options to support both the restoration of now-idle infrastructure needed to treat biomass off-site and the development of new treatment infrastructure. Placer County has supported projects that studied processing, transport and utilization of biomass with the intent of finding more effective and efficient processes. The studies have provided valuable information on benefits of biomass utilization and process efficiency. The County will continue to support and encourage such projects in the future. One key point that must be remembered in discussion of biomass utilization is that biomass alone has insufficient value to facilitate sustainable forest management or hazard reduction. Biomass utilization is most cost-effective when conducted in conjunction with projects that provide some product value.

#### **4.2.2.1 Sustainable Source Analysis**

For a conversion facility to be successful, determining the amount of biomass that will be available on an ecologically and economically sustainable basis from forest management projects, from urban tree management, and from various agricultural sources is essential to ensure appropriate sizing of the facility. This should include the annual and long-term availability of biomass in the region, and the specific location of that biomass in relation to possible facility sites. Placer County has completed various studies to provide reliable information on the amount of woody biomass available from federal and state-managed land on a sustainable basis. This information is supplemented by studies conducted by the County on the amount of biomass available from agricultural operations and private land. All such information is used to conduct a thorough supply and market analysis to determine the volume and seasonal availability of biomass fuel, as well as the costs to harvest, collect, process, and transport that fuel to a potential facility in the County. This is the type of sustainability analysis that was completed for the Cabin Creek biomass facility and will be done for any other proposed facility in Placer County.

Forest ecologists and fire scientists have provided guidelines for the type, size, and amount of forest biomass that should be removed—and left onsite—to ensure long-term forest ecosystem health and reduce effects of catastrophic wildfire. These guidelines are used by public and private land managers to prepare environmental documents in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) for various forest management projects. Biomass removal projects implemented by the County will conform to those guidelines. Furthermore, the amount and types of woody forest biomass that should be removed to promote healthy and fire-resistant forest ecosystems, and therefore be available for use at a biomass facility, will vary over time as treatments are implemented. Placer County is cognizant of this fact, and facility feasibility analyses will incorporate this understanding when determining biomass availability over the life span of potential facilities.

Strategy: Placer County will complete, in a partnership with respective developers, sustainable biomass source assessments as part of planning for any biomass facility proposals within the County.

#### Short-term strategies:

- Continue to explore ways to capture and utilize biomass material generated from forest management and hazard reduction projects and use the value of the biomass to help make forest management economically sustainable.
- County staff will review all potential grant opportunities and align with organizations to allow for the best chance of obtaining those funds.
- The County will continue to cost share with agencies to reduce the price of these project opportunities.

#### Long-term strategies:

- Continue to work with PCAPCD on studies that will help determine optimum levels of forest management for reducing wildfire effects, protecting forest resources and maximizing economic feasibility.
- Continue to track the evolution of the concept of using ecosystem services funding to help offset the cost of sustainable forest management.

Funding/Budget Strategy: Ensure that a developer has real intent and funding before attempting to secure grants or expending any county funds to support development of a biomass program or facility.

#### **4.2.2.2 Approaches for Facilitating Biomass Removal**

Various approaches or types of agreements are available to facilitate removal of biomass from forestland. In the past, the removal of waste biomass has been infeasible due to cost and this has led to reliance on open pile burning of the waste material as the usual means of disposal of this biomass material. Placer County will partner with agencies and landowners to implement agreements that will allow the maximum effective utilization of waste biomass. Such partnering can result in cost sharing approaches that allow economical removal and also provide substantial environmental benefits.

##### *Memorandum of Agreement (MOA)*

For some agencies and landowners a simple MOA can adequately govern the funding and responsibilities for removal of waste biomass. This document would be a mutually agreed upon set of goals and conditions that result in a cost sharing of responsibilities to provide services to a common goal.

##### *Standard Contracts*

Many agencies require a standard set of legal conditions to perform these services. To date the County has performed multiple projects with contracts from various local, state and federal agencies to remove biomass. In most cases these are standard contracts from one organization or the other and require at least partial cost sharing and usually stipulate rules

governing the land that the project is being performed upon. The County will continue to pursue these contracts where they make sense for all parties.

### *Stewardship Contracts*

One of the long-term goals for Placer County was to participate in a Stewardship Contract program with the Forest Service's LTBMU, the TNF, or both. That has been accomplished with the LTBMU. Initiated in the 2003 Appropriations Act, Public Law 108-7 grants the BLM and USFS a ten-year authority to enter into stewardship contracts or agreements to achieve agency land management objectives and meet community needs. One of the primary functions of a Stewardship Contract is to conduct treatments to improve, maintain, or restore forest health. Stewardship contracting differs from other existing contracting authorities in the following manner:

- Contracts are selected by the agencies on a best value basis.
- Contract length may exceed five years but will not exceed ten years.
- The agencies may apply the value of vegetative products removed as an offset against any services received (goods for services).
- Any excess offset value of vegetative products removed may be applied to other stewardship contracts (net proceeds retained by local national forest).
- A multiparty monitoring and evaluation process is required.
- Collaboration with stakeholders is encouraged.
- Contract award can be directed at local businesses or individuals.

Stewardship contractors (private companies, communities, or others) receive the value of forest products that accrue from forest management or hazard reduction projects. This value is compensation for completing forest management work like thinning and forest biomass cleanup, or even other projects like trail or campground construction, watershed improvement and road maintenance. For projects that produce insufficient forest product value, the federal agency supplements the contract with additional funding to pay for desired resource work.

Contracts can be for 10 years, or in limited cases, longer. These contract tenures foster a solid public-private partnership by providing assurance to those responsible for implementation of the contract. They are able to safely invest in equipment and infrastructure without worrying about contract stability--equipment and infrastructure that is needed to efficiently and effectively harvest, collect, process, transport, and utilize material generated from forest management projects. Commercial-size logs, brush and other woody biomass can be removed, and utilized for value-added purposes: from lumber, to soil amendments, to the production of heat and electrical energy. Lastly, stewardship contracts can sometimes provide a more reliable flow of biomass feedstock material at delivered values that do not require public subsidies traditionally required for biomass removal projects on public lands.

The Master Stewardship Agreement undertaken between Placer County and the LTBMU states the following: "The purpose and primary objective of this Tahoe Basin Master Stewardship Agreement is to reduce the number of acres of fuels burned annually on NFS (National Forest System) lands within the LTB by entering into a stewardship agreement with Placer County for removal of biomass from National Forest System lands. The biomass removed under this project has been and will continue to be generated during implementation of fuels reduction and forest health treatments currently being conducted and/or planned within the WUI on NFS lands."

### *Tools to Aid Implementation*

#### Request For Proposal (RFP)

Placer County has the option of using an RFP to hire contractors to perform the removal of the biomass. The procurement rules of the county require a fair competition to perform the business of the county. Various forms are available and the best economic fit can depend on the operations or the area where the work is to be performed. Staff will utilize this valuable tool to perform operations in the future.

#### Grants

Over the past several years Placer County has been fortunate to receive funding from various groups to perform biomass removal. Grants as a tool are valuable due of course to the actual funding but also from the information derived from the project, from the partnerships formed and from experience gained by the contractor that can influence future contract requirements.

Strategy: Placer County will pursue all opportunities for biomass removal and seek partners for each. An RFP should produce multiple contractors that could be contractually committed to perform these services in the county.

#### Short-term strategies:

- Placer County will endeavor to establish a Master Stewardship Agreement with the TNF and will explore the feasibility and desirability of doing so with the Eldorado National Forest. Placer County will conduct a Statement of Qualifications (SOQ) or RFP to "pre-qualify" contractors for potential biomass removal operations
- Pursue grants funding for opportunities
- Seek and partner with private and public entities to enhance biomass removal operations
- Send out an SOQ/RFP to ensure the availability of pre-qualified multiple contractors and cost effectiveness of funding

#### Long-term strategies:

- Propose legislative actions to support longer term application of Stewardship ideas
- In reports, presentations and media information, link biomass stewardship opportunities to lowering of overall firefighting costs in annual public agency budgets

#### 4.2.2.3 Biomass Projects

Numerous existing County projects are designed to remove biomass fuels from private land for the express purpose of protecting homes, businesses, and the community in general. The County also intends to build on the USFS' directive to promote healthy forests even beyond WUI areas and into accessible forested regions. The County has worked with organizations to develop and maintain fuel breaks and conduct defensible space inspections. In addition, the County is poised to begin managing open space and parks with a more aggressive hazardous fuels reduction program. Many of these projects have been described earlier in this document. As each project potential becomes available a plan will be developed to implement the project.

To date, the Biomass Removal Program has been very successful. The County initiated projects in which properties in the LTB and the TNF—both in the WUI and in wildlands—provided biomass that was chipped on-site or transported to a separate site for chipping, with the chips then transported to a biomass facility. These projects provided information that was documented in detailed reports. The reports analyzed operational and economic feasibility and provided valuable data for use in future energy facility feasibility studies.

#### *Typical Biomass Removal Operation in the Forest*



#### Short-term strategies:

- The County will seek local, state or federal funding for expansion of the program, with the objective of increasing the volume of biomass processed for utilization. Additionally, the County will promote the development of the program within the other areas of the county.

#### Long-term strategies:

- As development projects seek to be built in the WUI an effort will be made to ensure that fuel reduction strategies and funding is built into the cost of that development
- Working with all local, state and federal agencies Placer County will advocate to perform larger fuel reduction projects via cost sharing and other avenues of funding to increase the ability to reduce wildfire

Funding/Budget Strategy: Generally projects are funded by grants, multiple agencies or funds targeted for specific purpose of fuel reduction/protection of resources. The County will continue to seek and implement these types of funds targeted to high priority areas with the county.

### **4.2.3 Biomass Energy Conversion**

Currently, biomass energy facilities appear to represent the most feasible approach for utilizing excess biomass and increasing wildfire safety in Placer County. Forests grow and accumulate large amounts of biomass. Biomass in much of our forestland now exceeds the amount that was present historically and exceeds the amount needed for the ecologically healthy functioning of our forests. Absent wise, strategically placed sustainable management, more of our forestland will experience high intensity wildfire. In managed forests, some commercial sized trees are removed for products but excess biomass in the form of smaller trees, limbs, tops and brush is generally burned, chipped or masticated to reduce overall site fire hazard. Some excess biomass from forest management and hazard reduction projects is now taken to biomass power generation facilities, but the amount is limited by the challenges listed below. Most excess biomass is typically open-burned. Both open burning and wildfires emit significant volumes of air pollutants and chipped or masticated biomass emits carbon and large amounts of harmful emissions such as carbon dioxide and volatile organics including turpenes and methane as it deteriorates on site. Using excess biomass in a biomass power plant provides significant reductions in air pollutants. Besides reducing air pollutants, conversion of woody biomass into electrical power provides many other benefits. Direct or indirect benefits of establishing biomass energy facilities in the County include:

- Energy production from a renewable resource, thus reducing fossil fuel use
- Reduction of harmful air emissions and adverse health effects from particulate matter, hazardous air pollutants and greenhouse gases
- Creation of new, sustainable jobs
- Protection and enhancement of watersheds

- Protection and enhancement of wildlife habitat
- Forest health improvement
- Protection and enhancement of recreation and aesthetic values

#### **4.2.3.1 Feasibility & Technical Assessment**

Technologies for biomass utilization are continually advancing. For any possible new facility installation, Placer County will conduct a review of current biomass utilization technologies, and generate a list of appropriate technologies. The County will then analyze the ability to implement each technology deemed appropriate, and select both preferred and alternate technologies. Selected technologies will be demonstrated at an appropriate scale. In conducting the demonstration, work will be conducted with potential technology partners and affected communities to determine the criteria a technology must meet before it is implemented.

If the County determines it is feasible and beneficial to develop biomass utilization facilities in the County, each opportunity will require appropriate site analysis. Appropriateness of locations for facilities will depend on the abundance and distribution of biomass fuel, transportation issues, infrastructure, and environmental constraints. Once a potential site is located, the County will determine applicable site plans and environmental documentation before proceeding. The County will look at the affected communities for additional review to ensure that projects are scaled properly and have community support. Placer County staff will work with biomass technology consultants and experts to integrate biomass technology design into facility development plans.

Strategy: Placer County will continually evaluate new technologies and processes that may be relevant to the Program. The County also intends to demonstrate select technologies or processes as a means of validating their potential to the relevant parties.

##### Short-term strategies:

- Assist businesses or community organizations interested in pursuing biomass to energy facilities in the county
- Search for outside funding to conduct feasibility studies

##### Long-term strategies:

- Analyze and develop a map of all feasible facility sites within the County and assist in their development if warranted

Funding/Budget Strategy: As part of any economic development strategy the County will pursue business interests as collaboration. Various local, state and federal sources of funds can be used to assist in this opportunity. Because this involves renewable energy several more sources can be looked at for future funding. Staff will pursue all avenues of this type.

#### **4.2.3.2 Energy Development**

There are many challenges associated with establishing biomass utilization facilities in the County or elsewhere. To date, challenges include the following:

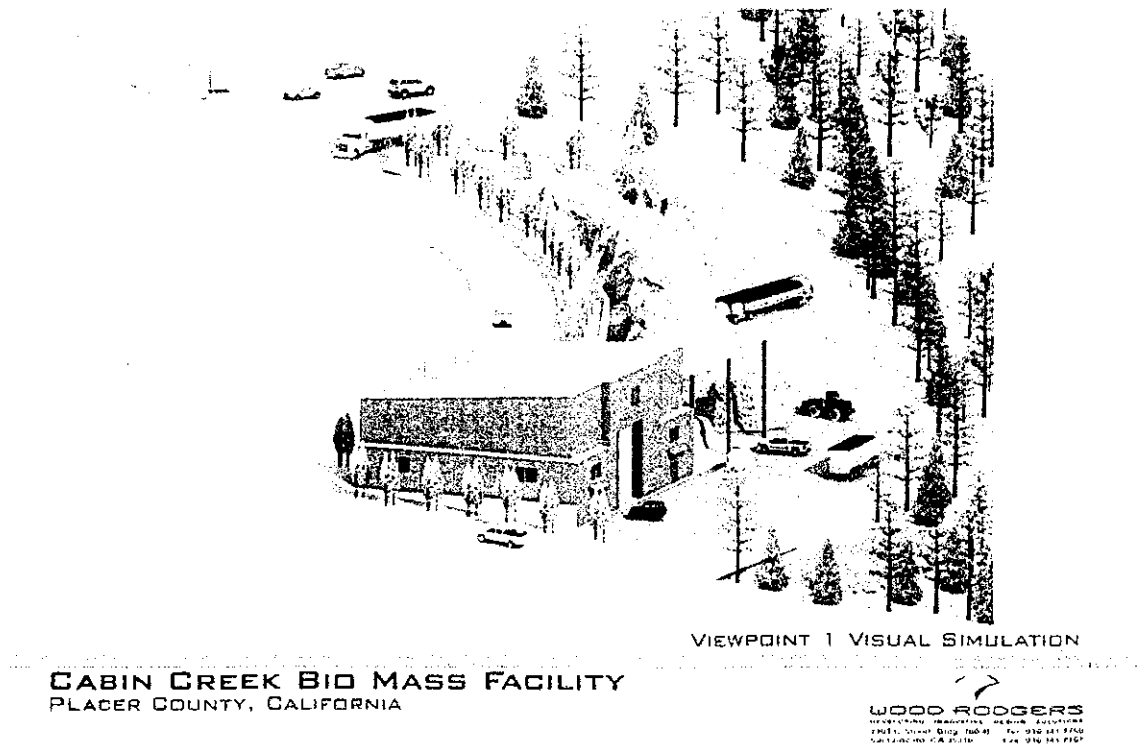
- Meeting air pollution and other environmental regulations
- Uncertain levels of funding for forest management projects that are sources of the excess biomass needed for a biomass facility—this creates uncertainty and risk for investing in biomass facilities
- Developing and funding biomass logistics capability—the equipment, processes and contracts for acquiring, processing and selling the biomass
- Cost of processing and transporting biomass to utilization facilities
- Acquiring funding for new biomass facilities
- Attracting private enterprise to the region
- Low cost of natural gas—currently a major energy source competing with biomass
- A general inability for the USFS to provide long-term, firm assurance of biomass supply that financial markets prefer before funding bioenergy facilities

Placer County has been fortunate to receive funding and assistance of partners in investigating alternatives that would utilize biomass to energy in an economically efficient manner. Two significant grants have shown promise in providing renewable electricity and vehicle fuel. The future appears to present some opportunities to at least partially address these challenges:

#### **4.2.3.3 Biomass to Energy Facility Development**

Staff has been able to successfully meet and overcome some of the challenges listed above in the planning and preparation for a biomass energy facility at Placer County's Cabin Creek property. Environmental documentation has been completed along with several studies necessary to complete that documentation. Environmental documents and an entitlement were approved by the Placer County BOS on May 7, 2013 and the project is cleared for implementation. A negotiated Power Purchase Agreement and a final economic analysis with the private investors remain ahead before this facility can be constructed and go into operations, tentatively in 2014/2015.

### 3-D Rendering of the Proposed Biomass Facility at Cabin Creek



In general, it is most effective to place small biomass cogeneration technologies at facilities with substantial base load energy demands. These include hospitals, government centers, prisons, and manufacturing plants among others. Such facilities offer the attendant benefit of utilizing excess heat produced by a biomass facility—thus increasing economic feasibility of any installation.

Advancements in biomass processing technology and techniques, coupled with increased efficiency of biomass power generation equipment and interest in distributed power generation facilities, offer some hope for economic feasibility of power generation facilities in the future.

Existing biomass power facilities located within the County (SPI - Lincoln and Rio Bravo Rocklin) have a minimum annual biomass consumption rate of approximately 340,000 bone-dry tons<sup>5</sup> per year. Given the necessary economy of scale and need to minimize costs for a small-scale, site-specific biomass utilization program, Placer County will need to coordinate with those responsible for the existing biomass flow in the region.

Ideally, multiple small facilities will be present in the County, such that the distance between the biomass source and a facility is significantly reduced. This would reduce transportation costs and potential traffic conflicts.

<sup>5</sup>One bone dry ton represents 2,000 pounds with zero percent moisture. This is a common unit of measure used in the renewable energy and forest products market sectors.

Fortunately, there are developments in the biomass energy arena that offer potential relief to the challenges faced by biomass energy as listed above:

- Placer County participated in the development of a biomass to energy carbon protocol that can provide funding to help reduce the cost of processing and transporting biomass to an energy facility.
- California legislation, SB 1122 provides for feed-in-tariffs (FITs) for renewable energy and new biomass facilities of 3 megawatts or less are included. These FITs can make biomass energy more competitive with other energy sources
- New biomass energy generation technology, particularly gasification systems that are cleaner and require little water and less space for operation
- Stewardship contracts offer an opportunity to develop longer-term, stable supply assurance

With these positive developments for the use of biomass in energy facilities, Placer County will continue to explore opportunities for establishing biomass energy facilities in other locations in the county. Staff will utilize our State and Federal advocates to increase the opportunities for more renewable energy partnerships and support such platforms as the following:

- Public support of renewable energy from biomass on public lands: Authorizing legislation that would provide support for shaping the language in appropriate legislation and rulemakings to ensure that woody biomass from all forest ownerships (public and private) is potentially eligible as fuel for renewable energy, and to acknowledge such use as being carbon neutral.
- Expand Renewable Energy Credits (REC's): Advocate for the use and ownership of RECs to properly recognize the Green House Gas (GHG) and criteria benefits of biomass energy projects that are "additional" (beyond "business as usual").
- Extend Production Tax Credits and Investment Tax Credits: Keep eligible the Investment Tax Credit (ITC) and the Production Tax Credit (PTC), federal incentive programs aimed to encourage investment and growth with the renewable energy sector.

#### **4.2.3.4 Biomass to Energy (fuel) Creation**

The utilization of waste biomass to create transportation fuel also has potential in Placer County. There are currently dozens of companies in the United States attempting to create economically viable biomass conversion to biofuels technologies using woody biomass wastes. Placer County, with its significant potential to supply biomass waste to such conversion system, is already a location for research and development activities in the biofuel arena.

As discussed earlier The California Energy Commission has funded a technology development company (G4 Insights, Vancouver B.C.) to conduct a demonstration project in Placer County using forest-sourced biomass. This biomass will be converted by the demonstration unit into

bio-methane that will then be compressed for use in a Placer County-owned Compressed Natural Gas (CNG)-fueled vehicle in a feasibility test. The use of forest-sourced biomass for transportation fuel will open up another potential product stream that could increase the feasibility of future Placer County hazardous fuels reduction projects. G4 Insights, through its subcontractor, TSS Consultants, is also preparing a feasibility study for the siting of a facility in Placer County that would use the biomass to bio-methane technology.

Strategy: Placer County will continue work necessary to establish any biomass supply sources and biomass to energy facilities within the County.

Short-term strategies:

- Complete the Cabin Creek facility analysis and build if warranted
- Define potential locations for future facilities in Placer County
- Continue to discuss business opportunities with power utility companies
- Continue to assist G4, where appropriate, in their efforts to use Placer County biomass waste resources for the production of alternative transportation fuels
- Continue to assist any business that proposes a biomass to energy facility, both for production of electricity and heat, as well alternative transportation fuels.
- Team with public and private entities for grant opportunities
- Continue to work with state and federal agencies on the promotion of renewable energy from biomass waste

Long-term strategies:

- Monitor biomass to energy technologies to determine feasible opportunities in the County
- Work with businesses to ensure any biomass to energy project within the county is developed in a way that can allow technology to be upgraded
- Propose County tax incentives to locate sustainable renewable energy facilities

Funding/Budget Strategy: These actions will be accomplished and funded through the partnership of public and private entities.

#### **4.2.4 Other Biomass-based Opportunities**

While chipping forest-based biomass for use in energy facilities seems to represent the greatest practical application of biomass utilization at present, Placer County is aware of other uses and potential uses that should be monitored for future opportunities. Some of those are discussed in this section.

Bio-Char: Bio-char is essentially charcoal that is produced from combustion of biomass in a low or no-oxygen environment (gasification). As such, one source of bio-char is a gasification energy facility. Bio-char has significant benefit as a soil amendment. It increases retention of water, natural nutrients and fertilizers, and thus helps increase soil fertility. Bio-char also has a very long residence time in soils—hundreds, even thousands, of years, so it represents very stable long-term carbon storage. Appropriate production and use of bio-char can qualify for carbon credit funding, so the currently expanding market for bio-char is potentially beneficial for biomass energy facilities. Also recently, bio-char has been proposed as filtering agent in wastewater treatment, which could significantly further increase its economic value.

Miscellaneous Uses for Biomass Unsuitable for Energy Facilities: Forest-based biomass can include needles and chips that have presence of soils at a level that makes it unsuitable for use in a biomass facility. Such biomass is, however, still very viable for use in other products. Uses include chipping for use as landscape cover—sometimes colored with dyes, or soil erosion reduction. Markets for soil erosion reduction chips include ski areas, where large areas have been cleared for ski runs, cut and fill slopes along highways where new construction, reconstruction or repairs are completed, and new developments of all kinds where soil disturbance occurs.

Particle Board Materials: During integrated biomass removal operations there is a product that can be used for particle board. The smaller non-lumber related logs can often be used in the particle board market if the operations allow for the separation.

Wood Product Sorting Yards: A concept that has been suggested at times is the use of wood product sorting yards where bulk woody material that is too small for processing into lumber products can be collected. At such yards, limbs, tops and small trees from various forest management and hazard reduction projects would be sorted for products such as posts, poles and rustic furniture or chipped for use as mulch, soil erosion reduction or supplying an energy facility. Since transporting bulk woody material is more expensive than transporting chips, sorting yards are generally only economically feasible when located very near the source of the woody material. Due to potential impacts from chipper/grinder noise, there is often resistance from neighbors if such yards are planned anywhere homes are present nearby. Generally, chipping or grinding woody biomass at the source is preferred because equipment noise is not an issue there and because woody biomass can be more efficiently hauled in chip form than in bulk form.

There are also many companies researching the development of new and innovative products from cellulosic biomass. Cellulosic biomass materials can be processed to create building blocks for industry to manufacture a wide variety of consumer goods, including fuels, chemicals, plastics, solvents, paints, adhesives, and drugs.

Strategy: Continue to provide material for current markets, develop new markets via current needs, and track emerging technologies that use cellulosic biomass and assess applicability in Placer County.

#### Short-term strategies:

- Placer County will look for opportunities to attract new, economically feasible technologies that utilize biomass materials.
- The County will examine other beneficial uses for biomass that may not currently have commercial value sufficient to encourage widespread use. For example, wood chips and tree limbs placed in strategic locations have been proven effective in minimizing erosion. Current businesses throughout the County utilize this strategy, and the County has jointly participated in coordinating these strategies to maximize biomass usage.
- The County will work with the California Department of Transportation, the USFS and others to develop working agreements for supply of erosion control chips from biomass material that does not meet quality standards for energy facilities.

#### Long-term strategies:

- Support the development of multiple strategies that can provide a sustainable process to utilize biomass.

Funding/Budget Strategy: The County will work with business and other agencies to develop methods and process to remove the biomass waste material if possible. Funding will need to be developed to ensure this long term as many of these ideas have now economic market.

### **4.3 AIR QUALITY IMPROVEMENT**

The following strategies are common to both wildfire protection and biomass utilization aspects of the Program. While other sections of this Strategic Report reference some aspects of air quality, this section focuses specifically on air quality improvement. Placer County can, through its programs, help improve future air quality.

Over the first years of the Strategic plan over 7,300 tons of a variety of emissions was able to be reduced with the projects that were performed. The results are shown for the movement of over 20,000 bone dry tons of woody biomass wastes where the baseline condition of open pile burning is compared with both current facilities and possible energy facilities nearer to LTB projects.

- PM10 (particulate matter, less than 10 microns); Reduced by 96% (over 120 tons).
- NOx (nitrogen oxide); Reduced by 47% (32 tons)
- CO (carbon monoxide); Reduced by 91% (1,100 tons)
- NMOC (non-methane organic compounds); Reduced by 99% (100 tons)
- CO2e (carbon dioxide + methane\*21); Reduced by 6,000 tons

Placer County has benefited from direction provided by the BOS since 2007 and will strive to improve on those successes via this strategic plan for our future.

#### 4.3.1 Air Quality

In addition to the primary goal of furthering the utilization technology base and lowering the cost of long-term energy needs, the Placer County biomass research and demonstration programs are quantifying and placing value on the significant air quality benefits. Improving air quality will produce numerous public benefits for the citizens of Placer County (and beyond). These include improved public health, protection of the significant visual resources of Placer County, and reduction in greenhouse gases (which could be of economic value to Placer County when a greenhouse gas reduction credits program is ultimately established in the United States).

##### 4.3.1.1 Effect of Uncontrolled Combustion of Forest Biomass on Air Quality

Wildland fires, prescribed burns, and open pile burning release large quantities of air pollutants including particulate matter (PM), nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), volatile organic compounds (VOCs), sulfur oxides (SO<sub>x</sub>), and hazardous air pollutants (HAPs). These combustion by-products degrade air quality, impact visibility, and impact local and regional human health. The Placer County biomass program is reducing fire-related emissions through: (1) supporting forest fuel hazard reduction thinning treatments which reduce wildfire size and severity, and (2) the increased diversion of biomass wastes to facilities where it can be utilized in a "controlled" manner to produce renewable energy.

*Typical Biomass Pile being Burned in the Open*



#### 4.3.1.2 Effect of Biomass Utilization System in Controlling Pollutants

The Placer County biomass program demonstration programs have determined that the use of biomass in a modern energy production facility can significantly reduce air pollutant emissions over open burning practices.

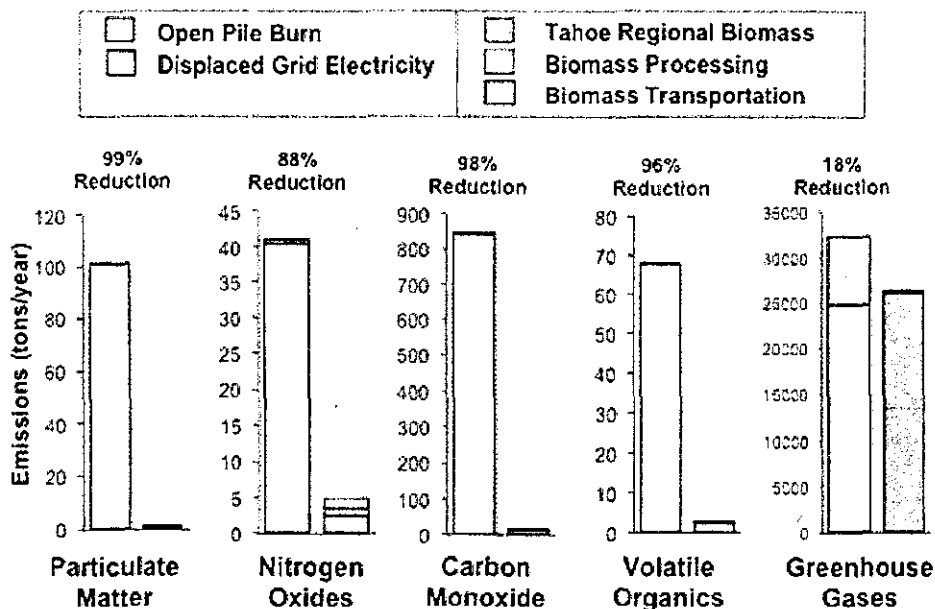
Biomass power facilities that produce both electricity and heating/cooling power can accomplish the following:

- Support hazardous fuels reduction
- Result in a net improvement in air quality
- Reduce waste material destined for landfills
- Co-produce transportation fuels (as emerging conversion technologies become available).

#### 4.3.1.3 Quantification of Air Quality Benefits

The establishment of new biomass utilization facilities in Placer County is currently constrained by existing local, state, and federal air regulations that do not take into account the benefits of controlling emissions at a stationary facility versus the uncontrolled emissions from open burning and wildfires. Placer County will seek ways, both through technical and scientific investigations and subsequent policy development in cooperation with state and federal agencies, to "offset" emissions from biomass utilization facilities that use biomass otherwise likely consumed by uncontrolled burning. Biomass power plants that use fuels reduction material for feedstock should be allowed to take credit for reducing overall net emissions, both in criteria pollutants as well as greenhouse gasses (GHGs).

***Comparison of Air Emissions from Open Pile Burning and Biomass to Energy Alternative***



The air emissions comparison for the alternative waste biomass treatments, as shown above, indicates a dramatic overall reduction of pollutants if excess forest biomass is utilized for the production of energy instead of being pile burned onsite.

Strategy: The County will work collaboratively with the PCAPCD, the California Air Resources Board, and the U.S. Environmental Protection Agency to develop an air quality trials program with metrics that can demonstrate the air quality benefits associated with using a biomass facility to offset wildfire and open burning of woody forest biomass.

Short-term strategies:

- Set up a monitoring program with APCD for the Cabin Creek biomass energy facility.
- Work with neighboring counties and agencies to lower open burning of forest waste.
- Continue helping APCD in efforts to get CARB to adopt the biomass protocol drafted by PCAPCD (see below).

Long-term strategies:

- Continue to use biomass to energy protocol in partnership with PCAPCD to assist projects that remove excess woody biomass for energy production.
- Promote projects that remove open burning and material left on the ground to investigate technologies that produce fewer emissions.

Funding/Budget Strategy: The County will continue to work with PCAPCD to incorporate the appropriate monitoring strategy into any approved facility development. County Staff will continue to contribute time and effort to support various programs in partnership with PCAPCD. County Staff will also continue to pursue funding from appropriate federal, state or private grants that support or help develop County programs.

#### **4.3.1.4 CEQA Mitigation and Carbon Credits**

In 2006 California enacted AB 32, the Global Warming Solution Act that created a statewide program to reduce greenhouse gases. In response to AB 32, Placer County worked with the PCAPCD to develop the "Biomass Waste for Energy Project Reporting Protocol" (Biomass Protocol) that provides a systematic process for Greenhouse Gas (GHG) Reduction Accounting. The protocol (located at <http://www.placer.ca.gov/departments/air/apcdbiomass>) is science-based and was developed using data from a project that processed and transported excess biomass from forest management projects on the Tahoe National Forest—biomass that was previously scheduled to be open-burned. Specifically, the biomass protocol addresses use of excess biomass—biomass that results from various forest management or hazard reduction projects that would otherwise be disposed of through burning, leaving on-site, or disposal in a waste facility—for production of energy. The protocol has been peer reviewed and is widely supported as a credible tool.

The protocol and the resulting offset program offer the potential for infusion of funding toward utilization of excess biomass from forest management projects designed to reduce effects of wildfires, both in wild lands and WUI areas.

It is anticipated that the Biomass Protocol will be used to provide greenhouse gas offset credits for projects where CEQA or NEPA require mitigation of the project's carbon footprint. Such use would involve the CEQA or NEPA project proponent purchasing greenhouse gas offset credit certificates resulting from projects under the Biomass Protocol reflecting the amount of carbon footprint being mitigated. The generated funds would pay for increased utilization of biomass for energy. The protocol may have application in other parts of the United States or other countries where carbon markets exist.

PCAPCD has the authority under CEQA to directly issue greenhouse gas offset credits for project mitigation and has in-house expertise to monitor and certify projects conducted under the Biomass Protocol. Additionally, the California Air Pollution Control Officer Association (CAPCOA) is implementing a GHG exchange registry that will offer options for CEQA project proponents to offset potential GHG emissions. The Biomass Protocol will be included as one of the options for providing greenhouse gas offset credits.

As discussed in section 4.2.6 of this Strategic Plan, a byproduct of gasification energy facilities is bio-char. Bio-char, used as a soil amendment, helps increase soil productivity and, thus, increases plants' uptake and sequestration of carbon. This benefit qualifies bio-char production and use for carbon credits. The PCAPCD is currently working on development of a protocol to quantify the carbon benefits of bio-char. Attributes of the protocol will include factors like quantity of bio-char produced and used as a soil amendment and magnitude of productivity increase from use as a soil amendment. There may also be factors that allow for calculation of benefits associated with differences in application locations--such as soil type and moisture regime. The protocol could include specification of scientifically defensible methods for determining the GHG reductions from carbon sequestration through the production of bio-char. It will define the calculations, analytical, and monitoring procedures required to conduct a bio-char offset project.

Placer County and PCAPCD cooperated to implement trial projects in 2008 that were designed to measure a series of variables associated with utilizing biomass for energy production in lieu of open burning. The projects provided valuable information and led to Placer County and PCAPCD receiving a national award from the U.S. Environmental Protection Agency (USEPA). In addition, the projects generated GHG benefits that will be sold to a project proponent and will be used to "kick start" the use of the protocol for GHG reduction—either directly by PCAPCD or by the California Air Pollution Control Officers Association (CAPCOA).

Strategy: Placer County will continue to work with PCAPCD and others on development of a carbon accounting protocol that addresses the atmospheric carbon reduction benefits accruing from sustainable forest management projects that reduce the size and intensity of wildfires.

This work will include the following elements:

- Determining the optimum percentage of area treated in forest watersheds for reducing GHG's while providing for both sustainability of forest resources like water, wildlife habitat, and soils, and for economic sustainability.
- Full cycle analysis of carbon benefits of forest management treatments to include accounting for the carbon benefits of using wood products in lieu of alternative nonrenewable building products like steel and concrete.
- Analysis of the benefits of periodic "maintenance" treatments intended to extend the benefits of forest management in reducing the size and intensity of wildfires.
- Analysis of the benefits of using excess biomass generated from forest management treatments in a facility to produce energy.

Short-term strategies:

- Help seek partners interested in participating in the research needed for development of the protocol.

Long-term strategies:

- Develop the protocol and market it to ensure broad use and application
- Implement the protocol as part of AB 32 implementation or through separate programs
- Complete additional research to adapt the strategy to multiple plant communities/ecosystems

Funding/Budget Strategy: Placer County will continue to contribute time and effort to support various programs in partnership with PCAPCD. Staff will look to find grant opportunities with both public and private ventures to ensure that all available carbon related improvements can be used in support of projects and programs.

Strategy: Continue to work with PCAPCD to encourage the state Energy and Public Utility Commissions and Air Resources Board to properly recognize the "green attributes" of biomass renewable energy, including the use and ownership of renewable energy credits (REC) as part of the Biomass Protocol-related GHG and criteria air pollutant reduction benefits of biomass energy projects that are "additional" (beyond "business as usual").

Short-term strategies:

- Continue to work with PCAPCD and support their ongoing efforts to change regulations related to green attributes of biomass energy

Strategy: Placer County will work with the PCAPCD to develop a carbon accounting protocol that addresses the benefits that accrue from the various uses of bio-char that is produced in biomass to energy facilities.

Short-term strategies:

- Help seek partners to participate in development of the protocol

Long-term strategies:

- Develop the bio-char protocol and market it to ensure broad use and application
- Implement the protocol as part of AB 32 implementation or through separate programs

Funding/Budget Strategies: County Staff will continue to contribute time and effort to support various programs in partnership with PCAPCD. Funding from implementation of protocols developed by the PCAPCD may be used to support implementation of certain programs or projects related to wildfire protection and biomass utilization goals outlined in this Strategic Plan.

#### **4.4 WORKSHOPS, EDUCATION AND OUTREACH**

To better serve the public, the County is providing information about Strategic Plan programs at a variety of venues and through a variety of means. Information is presented in lay terms to maximize the public's understanding of Program goals and developments.

Education is one of the best tools for fire prevention and safety, and the value of biomass utilization. Placer County's public outreach and education programs are designed to educate landowners on fire risk and ways of reducing it. The County believes educating landowners encourages them to conduct responsible pre-fire mitigation actions. Placer County currently supports fire professionals and their support of FSC's by participating with the California Fire Safe Council and California Fire Safe Alliance, and by staying informed of current fire prevention legislation and practices. Placer County provides free informational materials through the FSC's for distribution at community meetings as well as supporting the county FSC's themselves by providing presentation display hardware and materials.

##### ***Typical Fire Safe Participation during Outreach Events***



In collaboration with the Placer County Public Information Office, the County will develop strategic alliances with public and private partners to develop a Public Education and Community Awareness Campaign that provides information on alternative means of hazardous fuels reduction and biomass utilization. Possible campaign components include:

- Campaign logo/slogan contest
- Community forums/town hall meetings
- Summits/seminars (e.g., Tahoe Summit)
- Community recognition programs (that recognize exemplary "Firewise type Communities")
- School educational/curriculum materials to K-12 grade levels
- A fire safe/biomass newsletter
- Legislative briefings to the local delegation
- A biomass web site

Placer County will continue educating the public on fire prevention safety and biomass utilization. The County will provide comprehensive information to the public through:

Short-term strategies:

- Complete and publish a Biomass Facility Guide that outlines key steps and considerations for planning, feasibility assessment and completion of biomass energy facilities.
- Review our current documentation to ensure it reflects the latest standards and regulations for fire prevention in Placer County and the State.
- Develop standard presentation and handout packages that each fire safe agency uses or distributes to ensure the same information is being provided to all communities in Placer County.

Long-term strategies:

- Update the Biomass Facility Guide as needed based on lessons learned from continued implementation of this Strategic Plan.
- Placer County will continue educating the public on fire prevention and safety. The County will provide comprehensive information to the public on:
  - Creating an effective defensible space
  - Human behavior before, during, and after a fire
  - Effects of smoke-filled air on human health
  - Uses for biomass (e.g., mulching, erosion control)

- Burning alternatives and best burning practices
- Wildfire management organizations (e.g., fire safe councils and alliances)

Funding/Budget Strategy: In the past, Placer County has supported the development and print of education material through the federal Secure Rural Schools, Title III funding. Dollars will continue to be allocated through those means as long as Title III funding is available. If Title III funds are not reauthorized, grants will need to be pursued to replace it. Some funding has been provided by local utilities and home insurance agencies as well as printed material provided by PCRCD and PCAPCD.

## **4.5 CONCLUSION**

Since development of the initial Strategic Plan in 2007, there has been much progress in addressing wildfire protection and biomass utilization. This progress owes much to the substantial efforts of many people and significant funding provided by grants, appropriated funds, and funds from both Placer County and the Placer County Air Pollution Control District. Through all these efforts, a program is in place that offers a blueprint for future success. It is likely that funds from all sources will be less available in the future, but with the solid existing foundation provided by past successes, the strategies discussed in this plan seem reasonable and achievable.

### **4.5.1 Adaptive Management**

Strategic plans are most successful when they include built-in processes for monitoring their progress and adjusting implementation when that monitoring suggests a need. As such, implementation of this Strategic Plan will incorporate the principles of adaptive management. In executing plans for the Program, the County will monitor both plan progress and advancements in the latest techniques and technologies associated with forest management, fire science, fuels treatment, mitigation of impacts to sensitive resources, and biomass utilization.

Population and demographics are likely to change over the course of implementing the Strategic Plan. Societal needs and expectations may change with these population and demographic changes. Throughout the course of the Program, the County will make an attempt to assess the long-term (beyond 5 years) needs of the County, and incorporate those needs into the Program, as applicable.

Peer review of the County's strategies will ensure the approach is appropriate and that the Program maintains its objectives. The County will consider inviting outside (i.e., other than Placer County) organizations to assist in measuring the success of tasks, and to provide a critical review of the status of the Program.

The County will continue to stay current on new technologies and research, and will be prepared to transition to any new technologies or strategies that are more applicable to Program goals.

Good strategic plans are not static; rather they evolve to reflect new knowledge, needs, and strategies. Placer County intends to review this Strategic Plan at least once a year to document progress, assess goals, and to confirm the vision, strategy, roadmap, and program elements.

#### **4.5.2 Overall Program Accomplishment and Funding**

Placer County has prepared a comprehensive Strategic Plan that has outlined ambitious activities to reach the objectives of the Program. Most of these activities will require funding. Fortunately, the County has federal and state legislative advocates who assist in identifying potential funding sources and past success of Placer County work has provided credibility for attracting funding that will be necessary to reach the full potential of this Strategic Plan.

In addition to Placer County discretionary funding, funding will be pursued from a combination of local, state, federal, and private sources to complete what the County has proposed. During each year staff will review opportunities with advocates and the County's management team to determine what funding is to be pursued.

